The ROI of Usability: Government Style

How to Demonstrate the Value of User-Centered Design Within Your Agency

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Mary M. Michaels
Project Director, Human Factors International
mary.michaels@humanfactors.com
609-818-1098

Carmen Marco
FAA Web Manager, Office of Communications
carmen.marco@faa.gov
202-267-8859

How Can User-Centered Design Be Defined?

ISO definition for User-Centered Design:

- The active involvement of users and a clear understanding of user and task requirements
- An appropriate allocation of function between users and technology
- The iteration of design solutions
- Multi-disciplinary design

Usability Is a Part of User-Centered Design

Usability Testing:

The *evaluation* of existing design with specific criteria.

- Is the design usable?
- Does the design match the way users think and work?
- Is the design effective, efficient, & satisfactory for users?
- Can users complete their tasks?

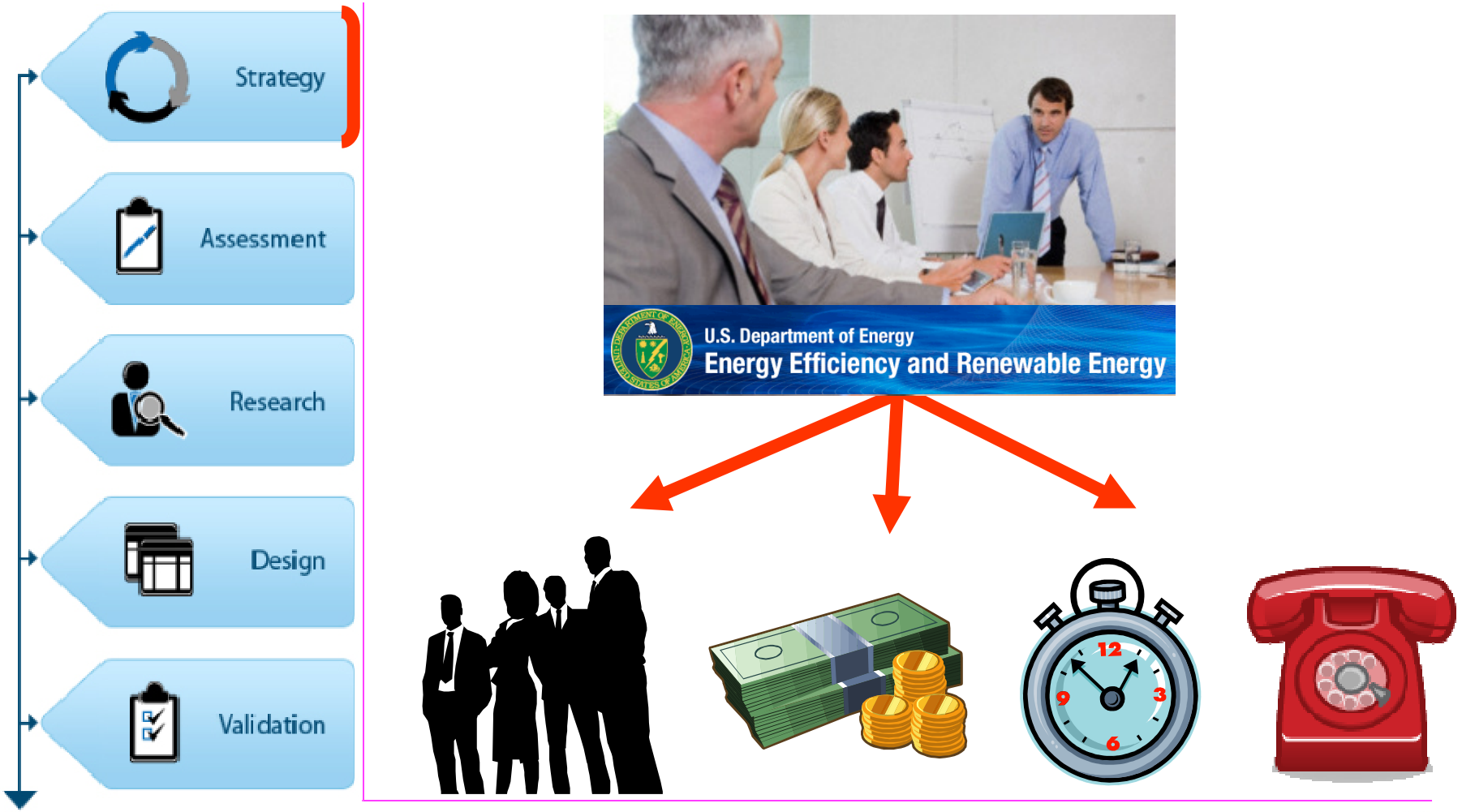
What Is a Usability Test?

- The process of having users experience your site
- Performance-based evaluation of key, critical tasks
- An ongoing process—not a one-shot evaluation
- A key component of the User-Centered Design Methodology

What Is a Remote Moderated Usability Test?

- Moderator and participant view the same screen from different locations
- Communicate via telephone or through the desktop sharing tool itself
- Method enables access to widely dispersed locations and participants
- Cost effective way to evaluate users in realistic environment

User-Centered Design Methodology



Institutionalization

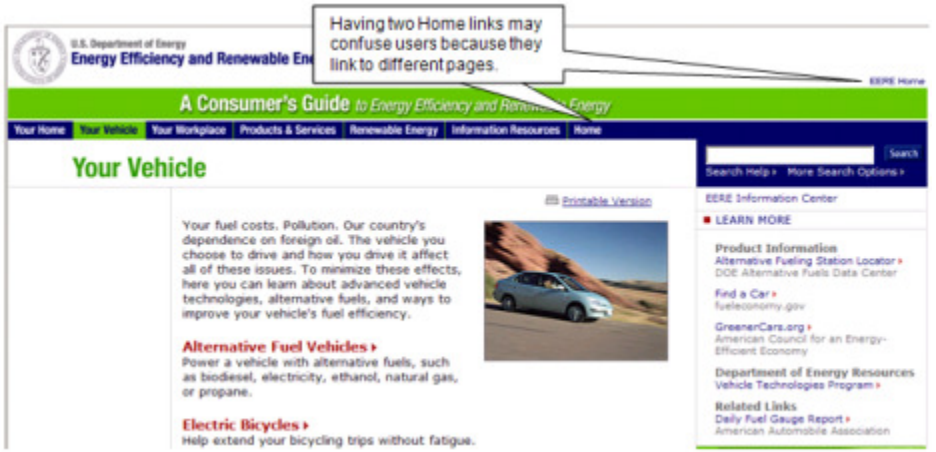
User-Centered Design Methodology

Navigation

Presentation

Content

Interaction



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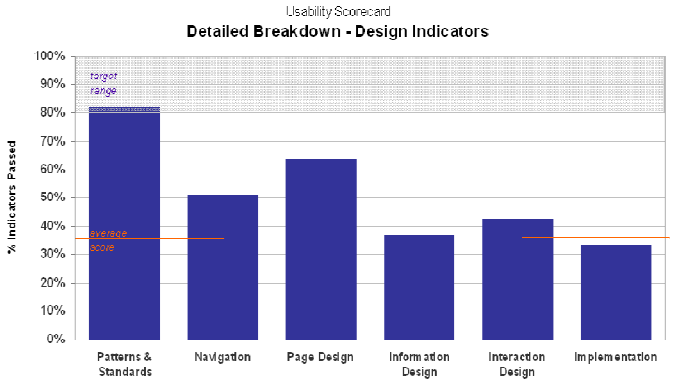
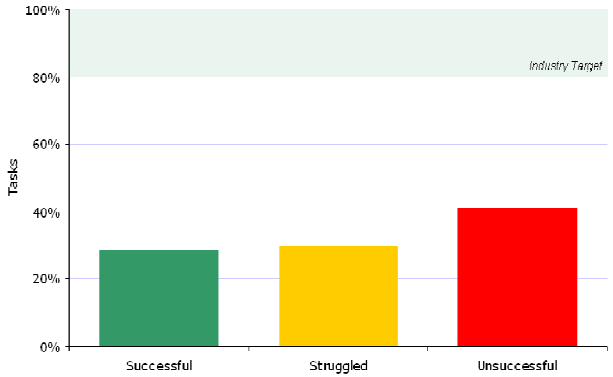
Best Practices Review Scorecard



Usability Testing Success Rates



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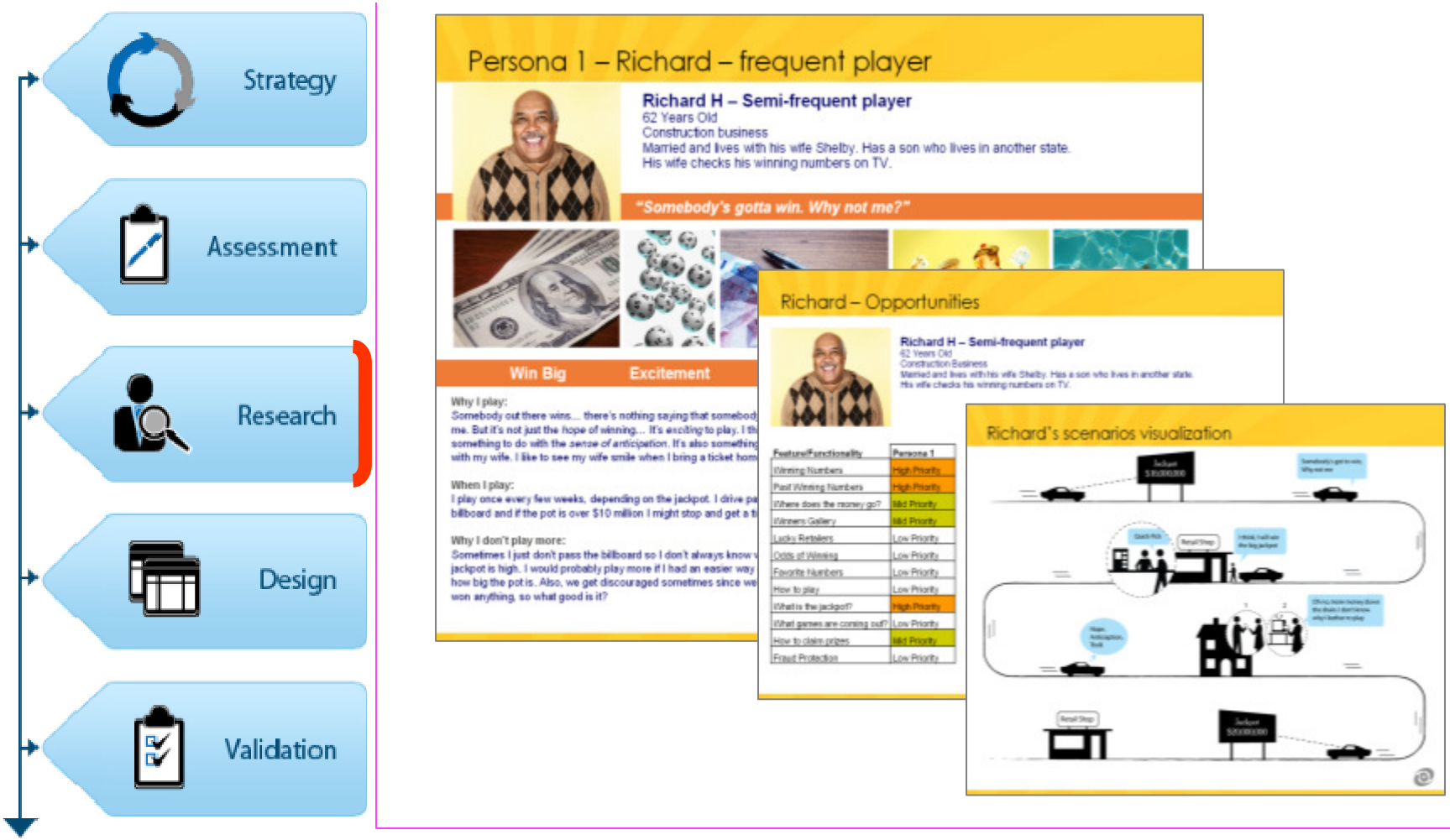
User-Centered Design Methodology



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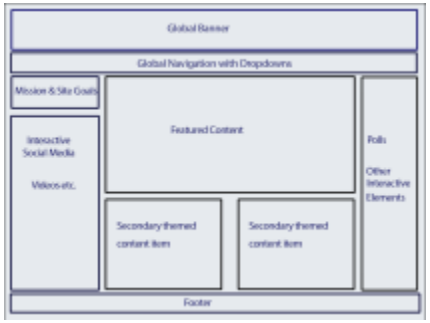
User-Centered Design Methodology

Information Architecture | Concept Sketch | Wireframe | Visual Mockups | Prototype



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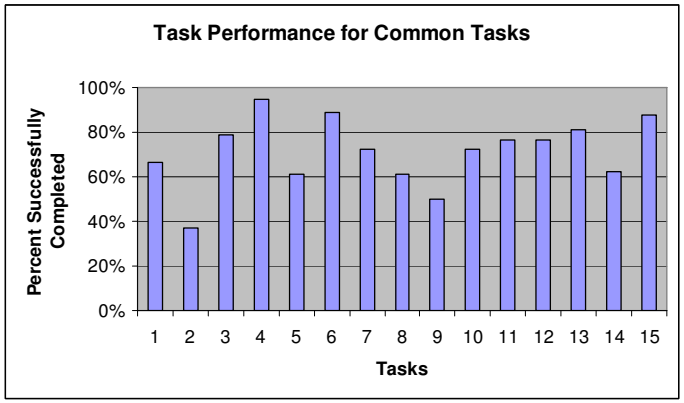
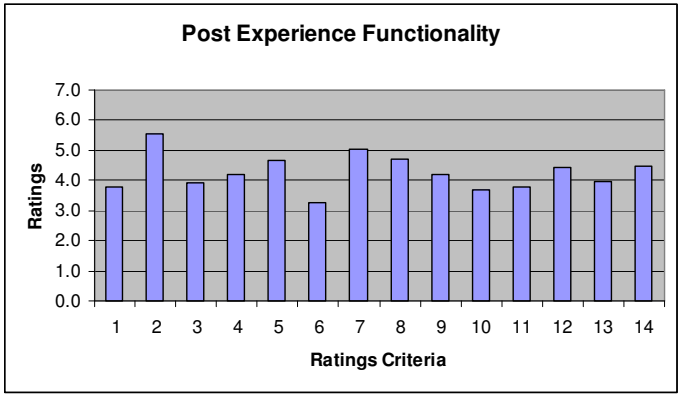
User-Centered Design Methodology





Institutionalization

User-Centered Design Methodology

Usability Maturity Model

Human Factors International

○ Not there ◑ Somewhat present ● Present

Usability Activity	Level 1 Beginning Usability	Level 2 Executive Champion	Managed Usability: Level 3 Infrastructure	Level 4 Staffing	Level 5 Routine
Strategy					
Written Strategy	○	●	●	●	●
Infrastructure					
Product and Site Review Process	◑	◑	●	●	●
User Centered Design Methodology	○	○	●	●	●
Integrated Software Dev. Process	○	○	◑	◑	●
Corporate Design Standards	○	○	●	●	●
Showcase Projects	○	○	●	●	●
Education and Training					
Continuous Training	○	○	○	○	●
Usability Staff	◑	◑	●	●	●
Developer	○	○	○	●	●
Management	○	○	○	●	●
Staffing					
Executive Champion	○	●	●	●	●
Usability Team	◑	◑	●	●	●
CUA on Staff	○	○	○	●	●
10% Usability Staff	○	○	○	●	●
Organization Certificate Audit			III	IV	V

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Institutionalization

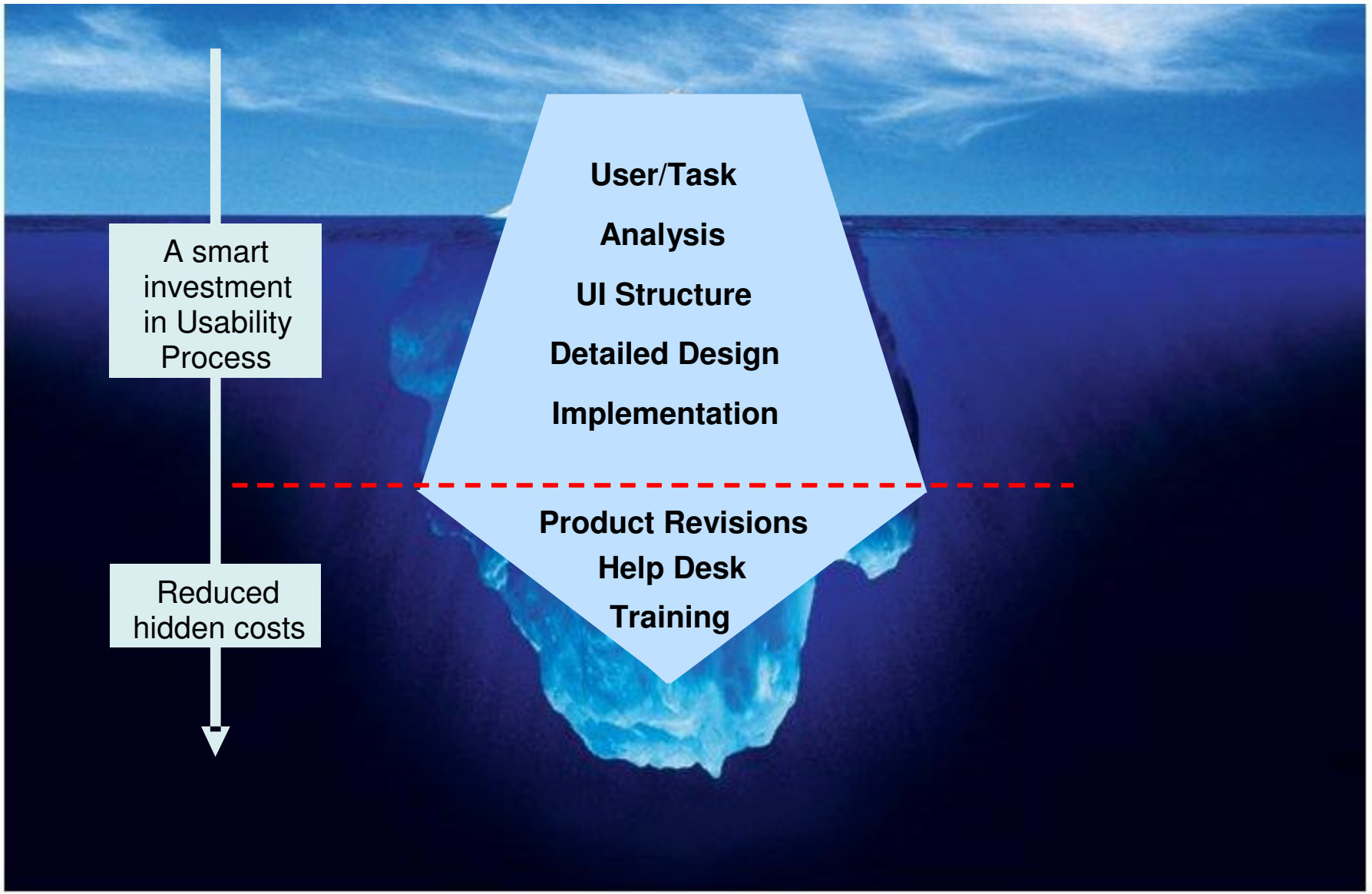
Things You Hear When Usability Is Not Routine

- "If we get into trouble…then we'll do some usability work."
- "We'll worry about the interface after we have the technical solution worked out."
- "If we do some user testing at the end, that is good enough for this project."

- "We don't have time to do *any* usability work, we have to start the technical design."
- "Usability work *increases* the cost of the project."
- "If we do usability work, we *won't* meet our time deadlines."

Hidden Costs of Shortcutting the Process

Efficiency of Investing in the Full Process



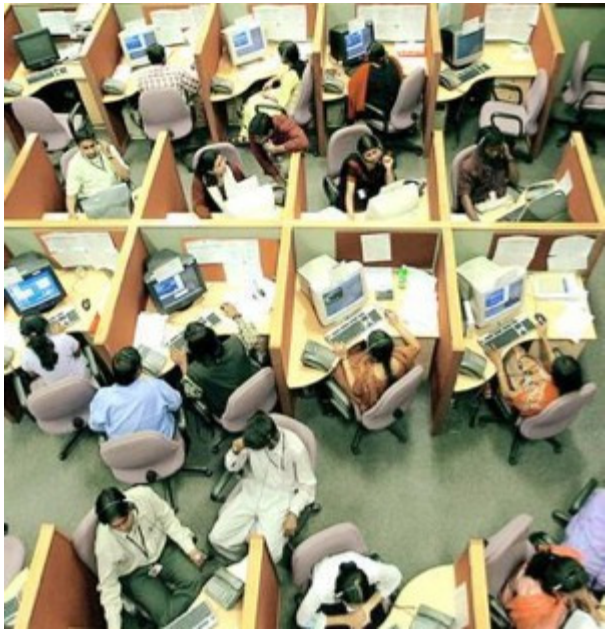
Business Value: Reduced Development Time

Business Value: Reduced Training

Business Value: Reduced Costs

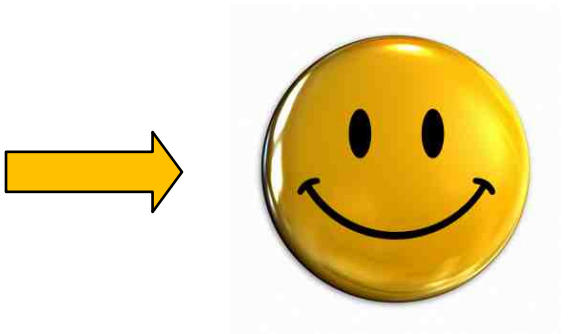
Business Value: Higher Productivity

Business Value: Reduced Support

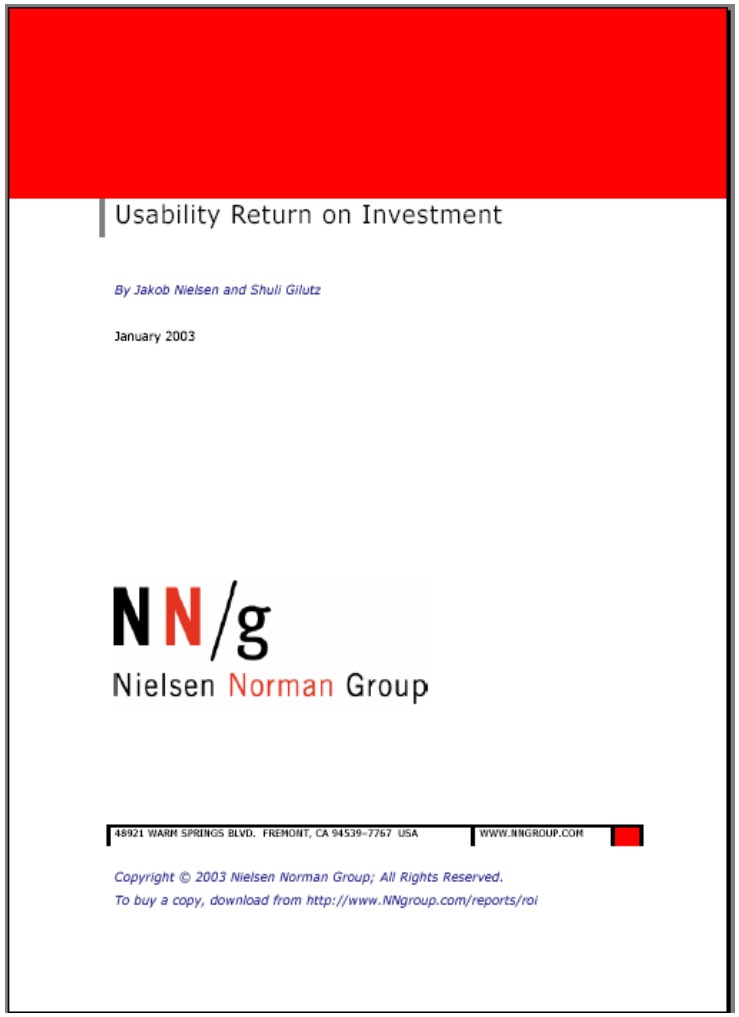


Better Brand for Agency, Increased Trust from Citizens

User-Centered Design—Better for Users, Better for Your Agency



How Usability Supports Your Agency



"It is common for usability efforts to result in a hundred percent or more increase in traffic or sales."

Jakob Nielsen

863 Projects Reviewed

Clients paid **10%** for usability work.

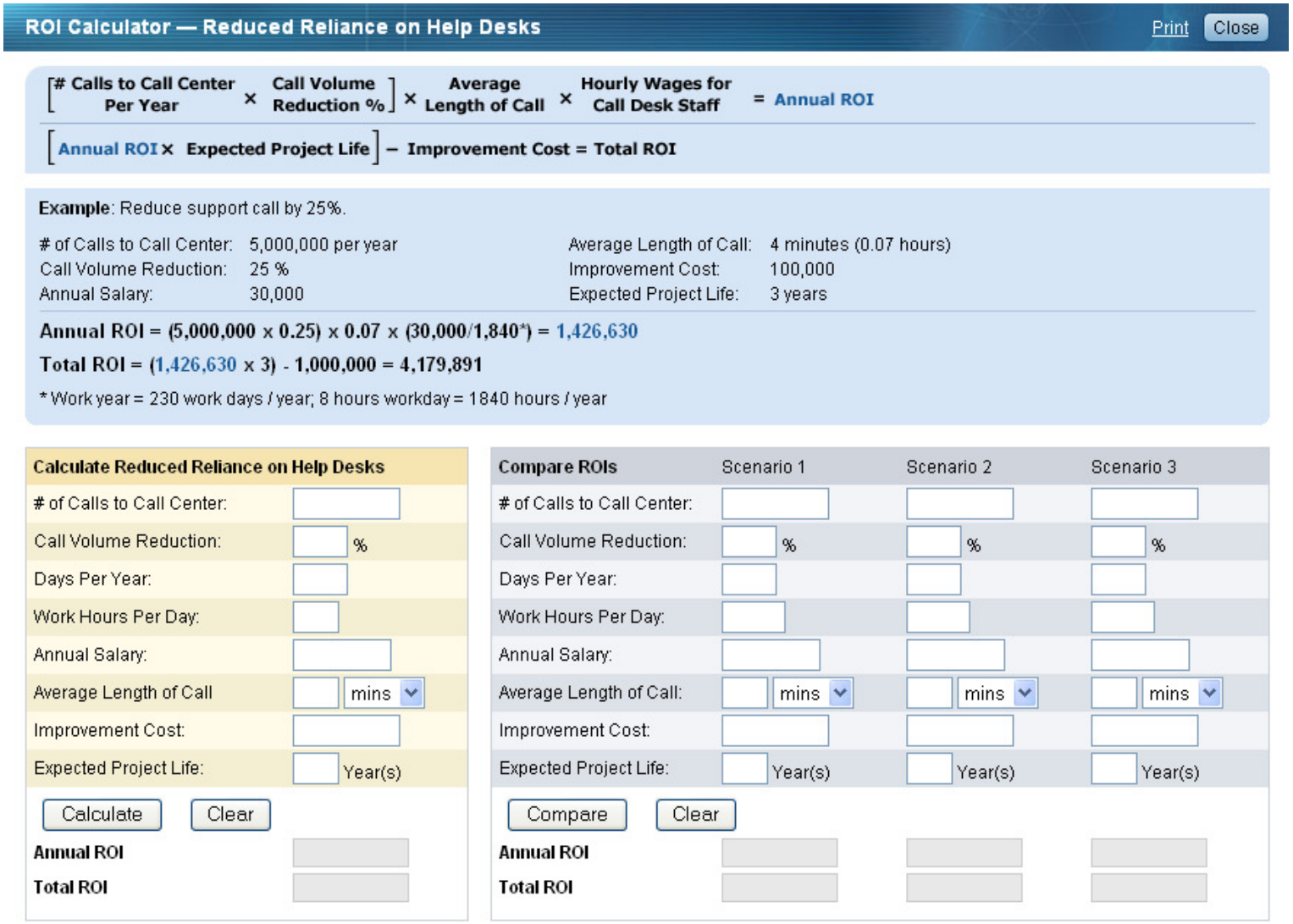
Their ROI was:

- Sales/conversion **100%**
- Traffic **150%**
- Performance **161%**
- Use of functions **202%**

Return on Investment Benefits

ROI Measurement	Criteria
Decrease in # of calls to help desk	# or %
Reduction in training	# of days / hours reduced
Increase in usage	# of people, # of sessions, or % increases
Savings of user's time	# of minutes / hours and / or multiplied by labor rate
Savings of programmer's time	# of minutes / hours and / or multiplied by labor rate
Error reduction	# or % or resulting $$ amount if any
Increase in pages viewed	# or % increase
Decrease in drop-off	# of people or % reduction
Conversion rate	# of visitors who buy or % increase
Average order value or net dollar per visitor	% increase in $$

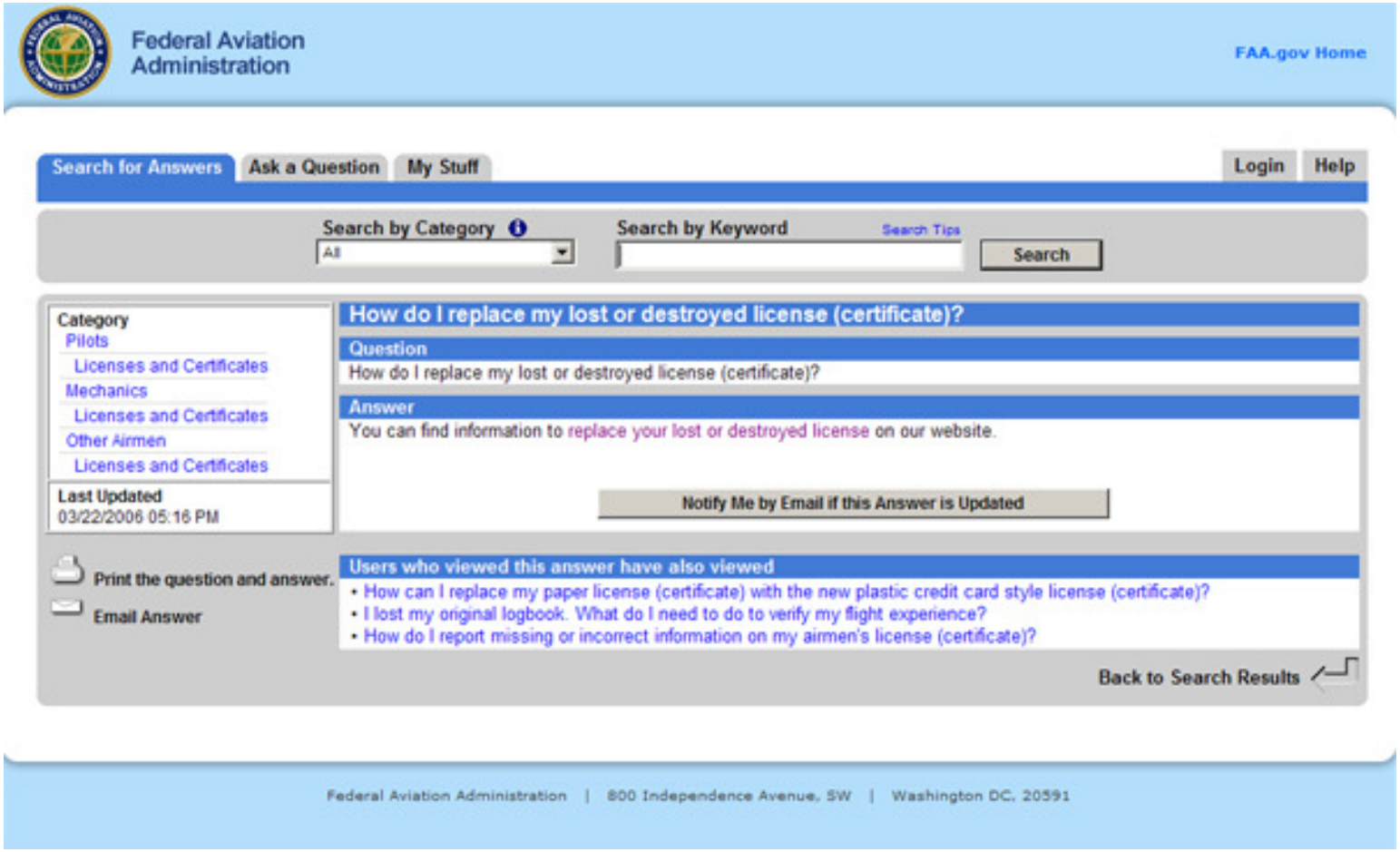
ROI Calculator: Example for Reduced Reliance on Help Desks



First Taste of ROI at FAA

ROI for Support E-mails

The FAA now saves $*1 million per year*



FAA.gov in 2002 – We Needed Help

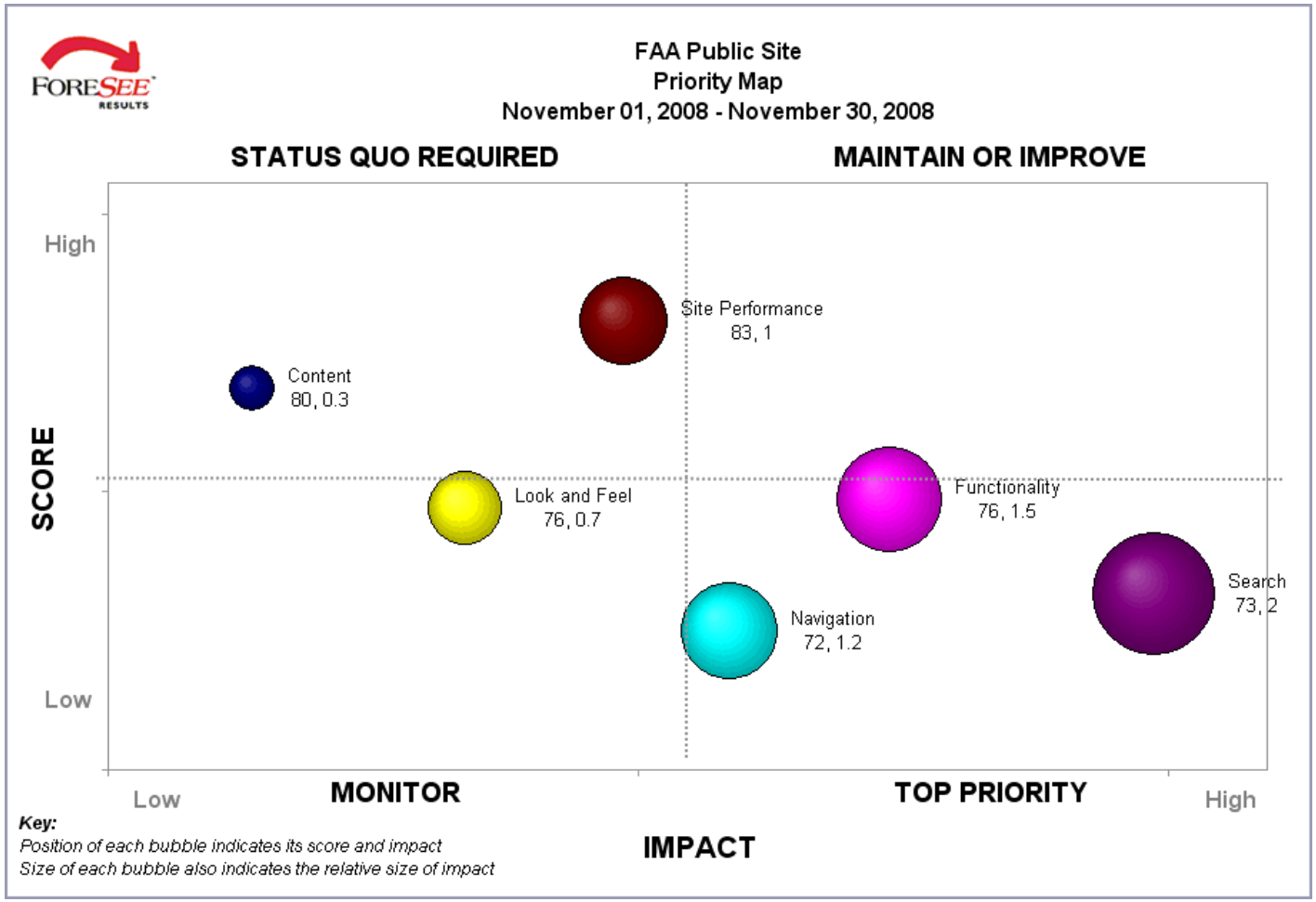
- How well do we know our customers?
- How satisfied are they with our website?
- Can they find what they are looking for?
- Where can we improve?

ForeSee Results American Customer Satisfaction Index (ACSI) Online Survey

FAA's #1 ROI Metric

- Measures 200+ federal government sites
- OMB Approved
- Identifies improvement areas that drive increased satisfaction and loyalty
- FAA.gov receives over 1500 responses a month

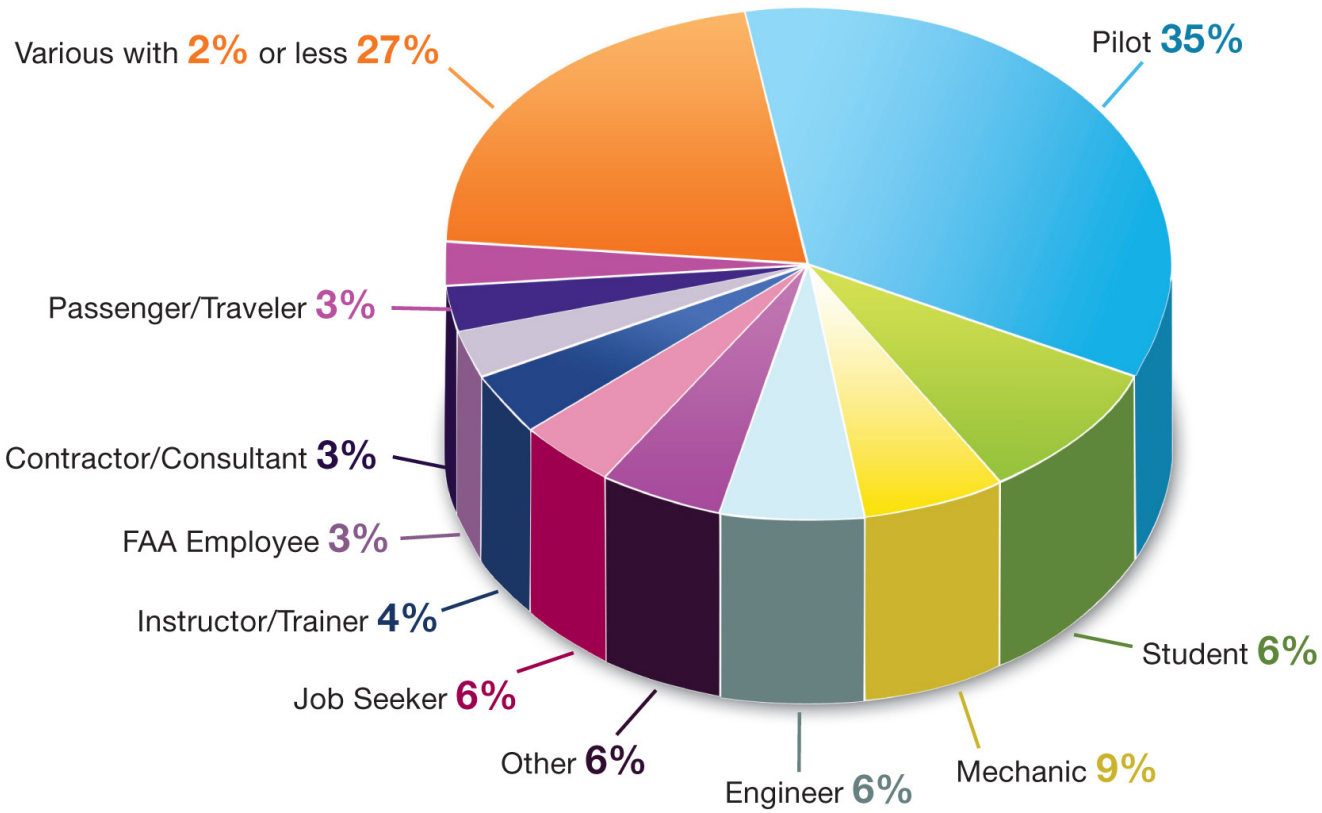
ForeSee Results Priority Map



FAA.gov Customers

FAA Audiences (latest 3 month average – Dec.-Feb.)

Various with 2% or Less
Airline oper. / empl., 2%
Inspector, 2%
Air Traffic Controller, 2%
Designee, 2%
Other Aviation prof., 2%
Researcher, 2%
Military personnel, 2%
Foreign aviation prof., 2%
Manuf. / supplier, 1%
Airport staff person, 1%
AME or medical staff, 1%
Attorney / legal prof., 1%
Analyst, 1%
Dispatcher, 0%
Media professional, 0%
QA professional, 0%
Person w/complaint, 0%
Non-FAA Empl., 0%



Customer Comments (2006)

"I'm looking for FAA orders, and there's no organization… they are scattered all over….Where is 6000.15D?."

Satisfaction score: 4

"Fix Search…it's useless."

Satisfaction score: 45

"Please change how you present and prioritize Search results."

Satisfaction score: 49

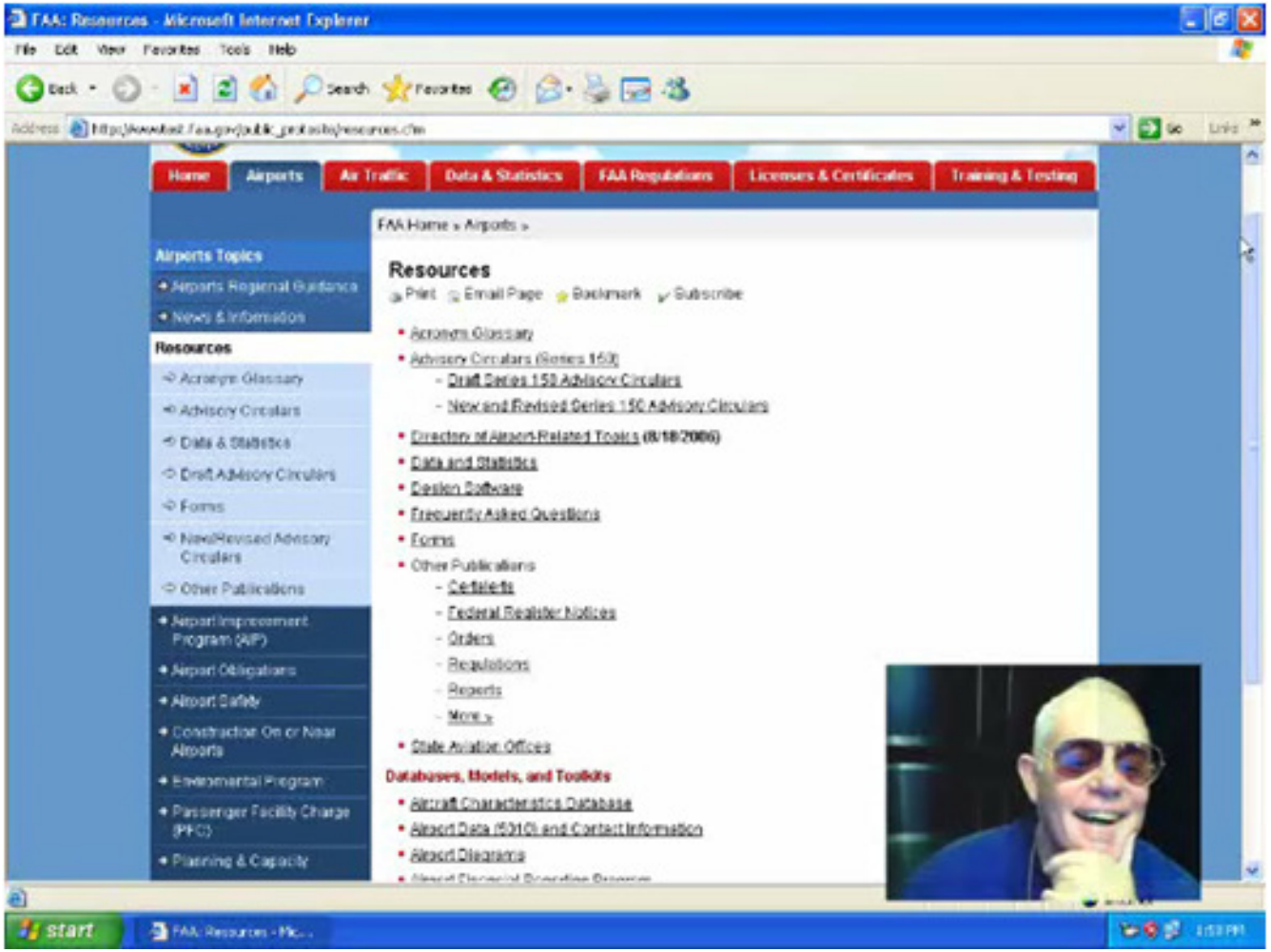
FAA.gov Overall Satisfaction Score

2006

- **FAA = 66**
- **Federal Government Average = 71**
- **Based on 100 point scale**

FAA.gov
First Usability Study, 2006

FAA.gov – First Usability Study, 2006



2006 Usability Study With HFI

We learned a few things!

Three key areas to improve

1. Search
2. Navigation
3. Top Tasks

Case Study 1

Search

Improving Search on FAA.gov

- Search is the **#1 user activity on FAA.gov**
- **500,000 searches** a month
- Improving Search will have a big impact

Successful Search

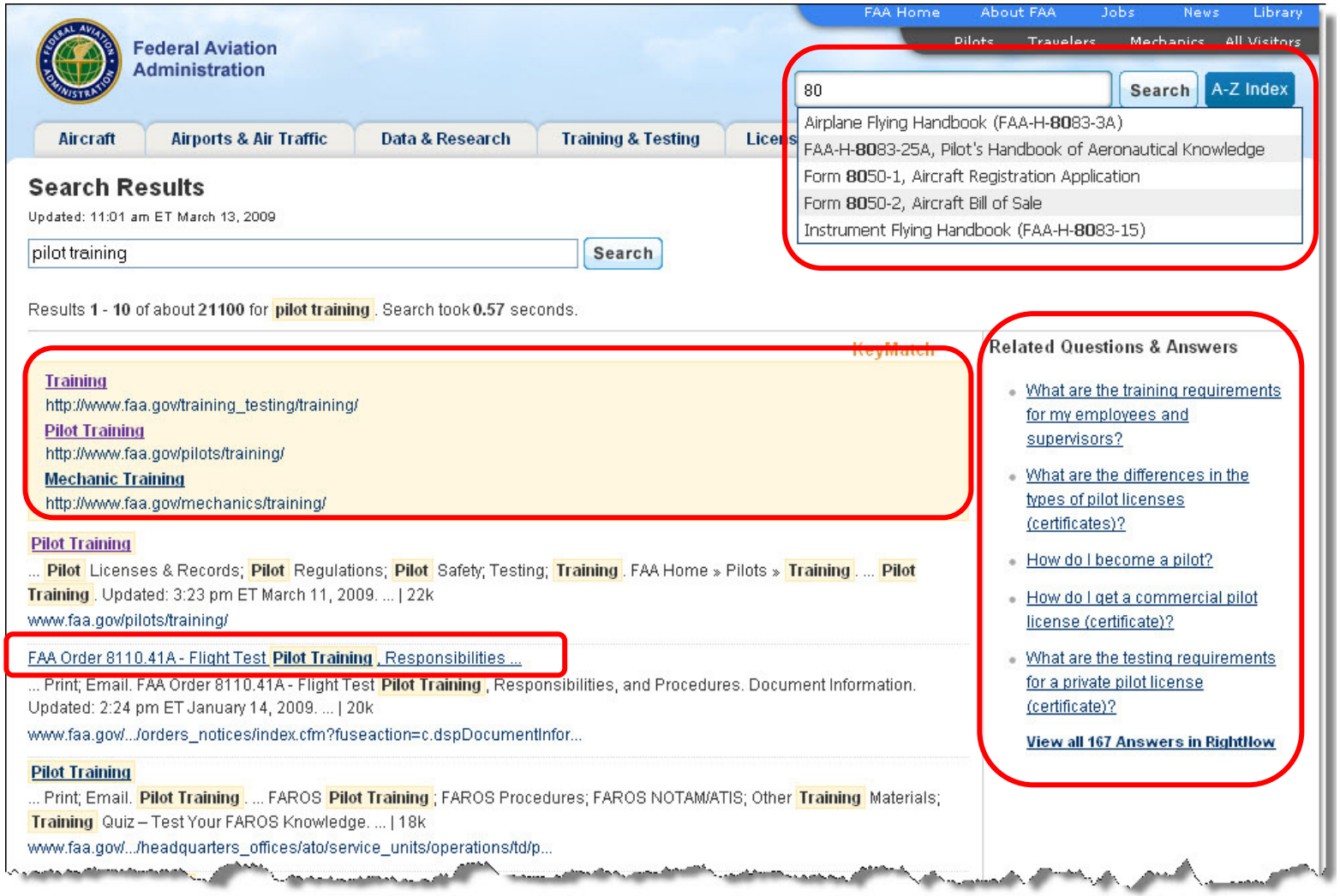
- Success = users found what they sought on **page one of search results**
- We call this metric **"first page relevancy"**
- First page relevancy **increases task completion** and **saves time**

FAA Search – 2007

Top Search Term: "**DER**" (Designated Engineering Representative)

- **Average time spent looking at Search Results page = 2 minutes**
- **Almost half of the searches were unsuccessful**

Search – 2009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FAA-H-8083-25A, Pilot's Handbook of Aeronautical Knowledge
Form 8050-1, Aircraft Registration Application
Form 8050-2, Aircraft Bill of Sale
Instrument Flying Handbook (FAA-H-8083-15)
Aircraft
Airports & Air Traffic
Data & Research
Training & Testing
Search Results
Updated: 11:01 am ET March 13, 2009
pilot training
Search
Results 1 - 10 of about 21100 for pilot training. Search took 0.57 seconds.
KeyMatch
Training
http://www.faa.gov/training_testing/training/
Pilot Training
http://www.faa.gov/pilots/training/
Mechanic Training
http://www.faa.gov/mechanics/training/
Pilot Training
... Pilot Licenses & Records; Pilot Regulations; Pilot Safety; Testing; Training. FAA Home » Pilots » Training. ... Pilot Training. Updated: 3:23 pm ET March 11, 2009. ... | 22k
www.faa.gov/pilots/training/
FAA Order 8110.41A - Flight Test Pilot Training, Responsibilities ...
... Print; Email. FAA Order 8110.41A - Flight Test Pilot Training, Responsibilities, and Procedures. Document Information. Updated: 2:24 pm ET January 14, 2009. ... | 20k
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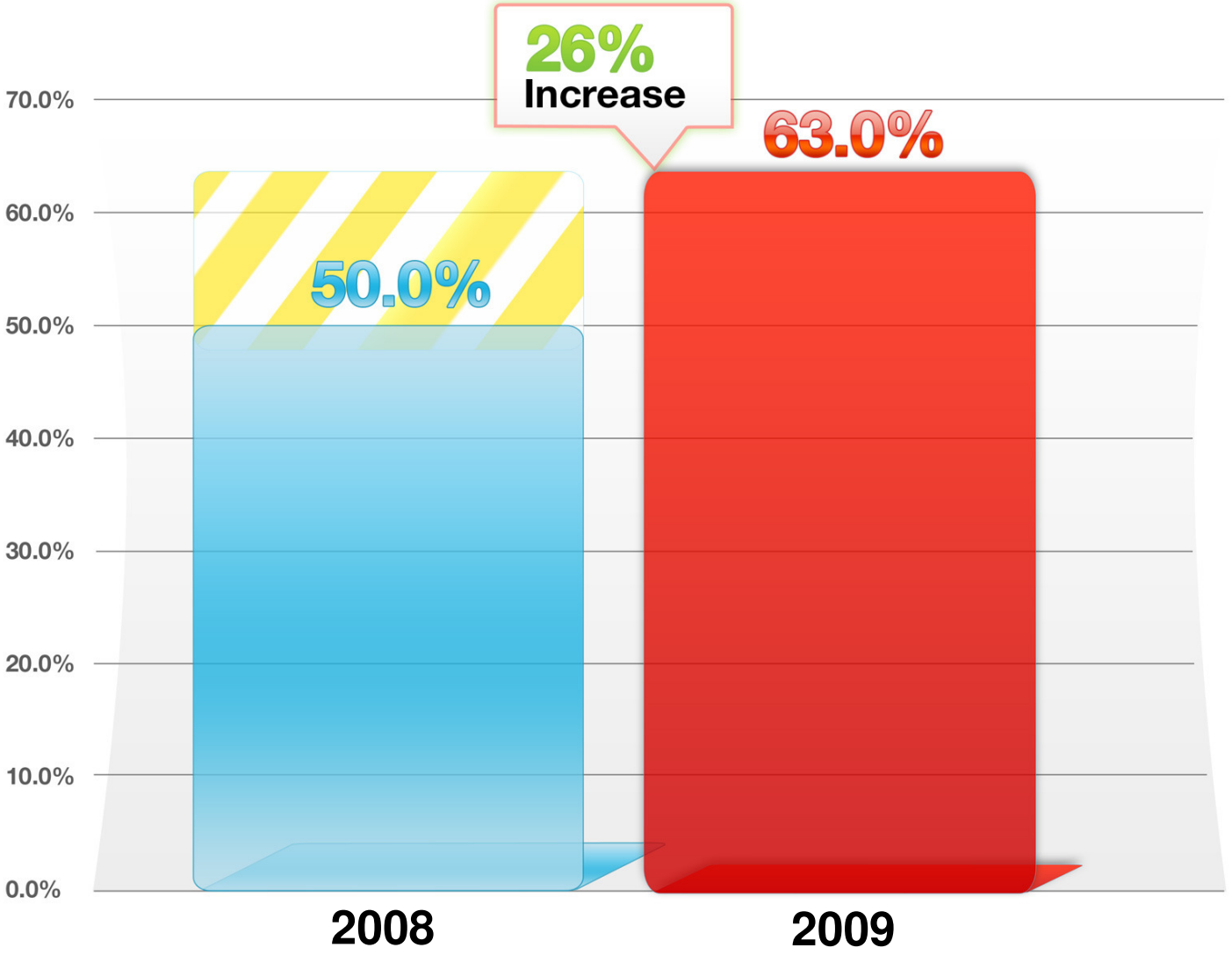
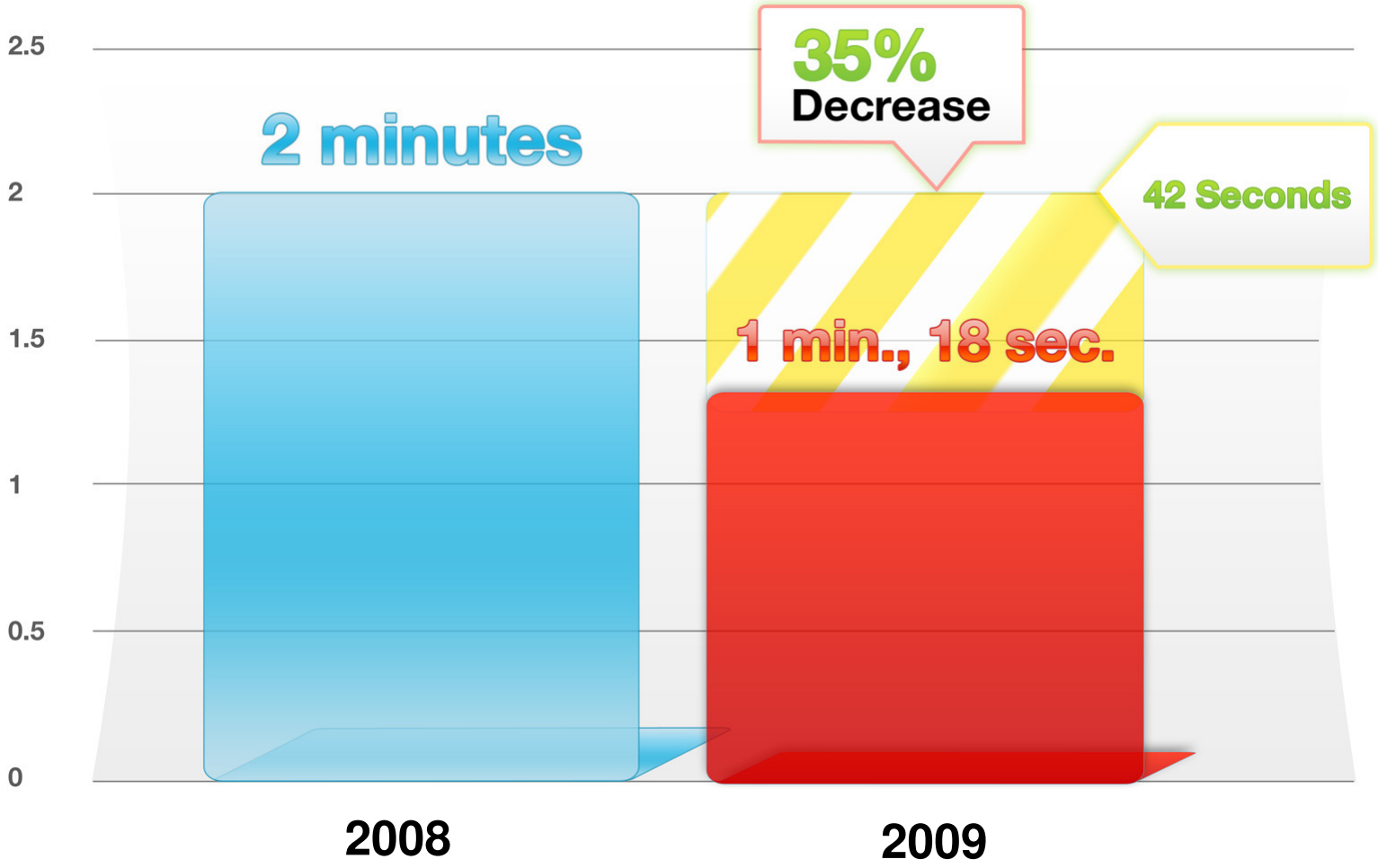
Related Questions & Answers
What are the training requirements for my employees and supervisors?
What are the differences in the types of pilot licenses (certificates)?
How do I become a pilot?
How do I get a commercial pilot license (certificate)?
What are the testing requirements for a private pilot license (certificate)?
View all 167 Answers in RightNow

Did Search Improve?

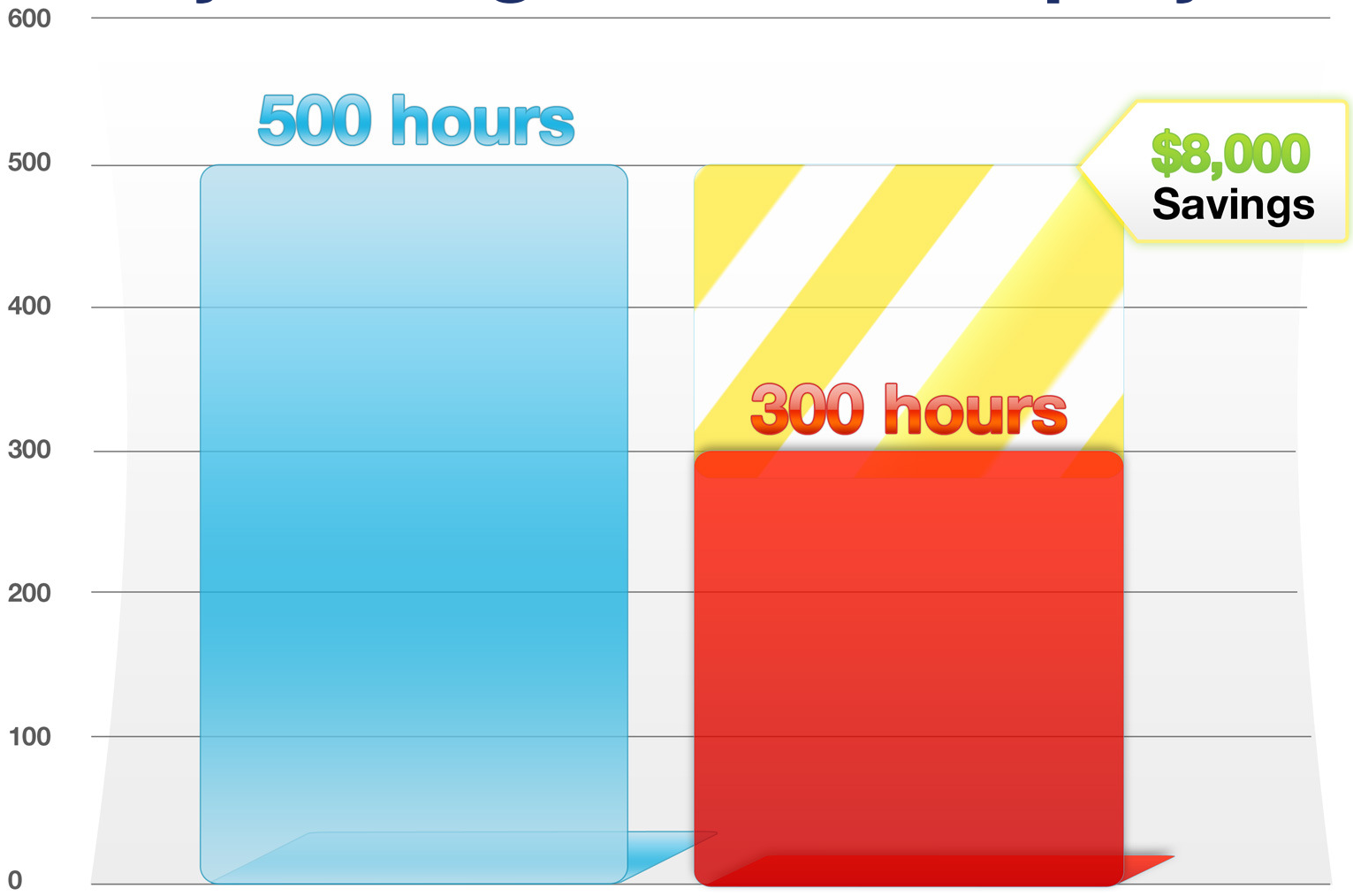
Successful Searches



Time Spent on Search Results Page



Monthly Savings to FAA Employees*



*** Based on $80,000 a year salary**

Case Study 2

Navigation

Improving Navigation on FAA.gov

- **Usability testing and website analytics showed us that our top navigation bar was causing confusion**

Researchers were struggling to find accident data…

Pilots were struggling to find test guides as they prepare to get their instrument rating…

Proposal/Business Case to FAA Stakeholders

- **Change "Education & Research" to "Training & Testing"**

- **Change "Data & Statistics" to "Data & Research"**

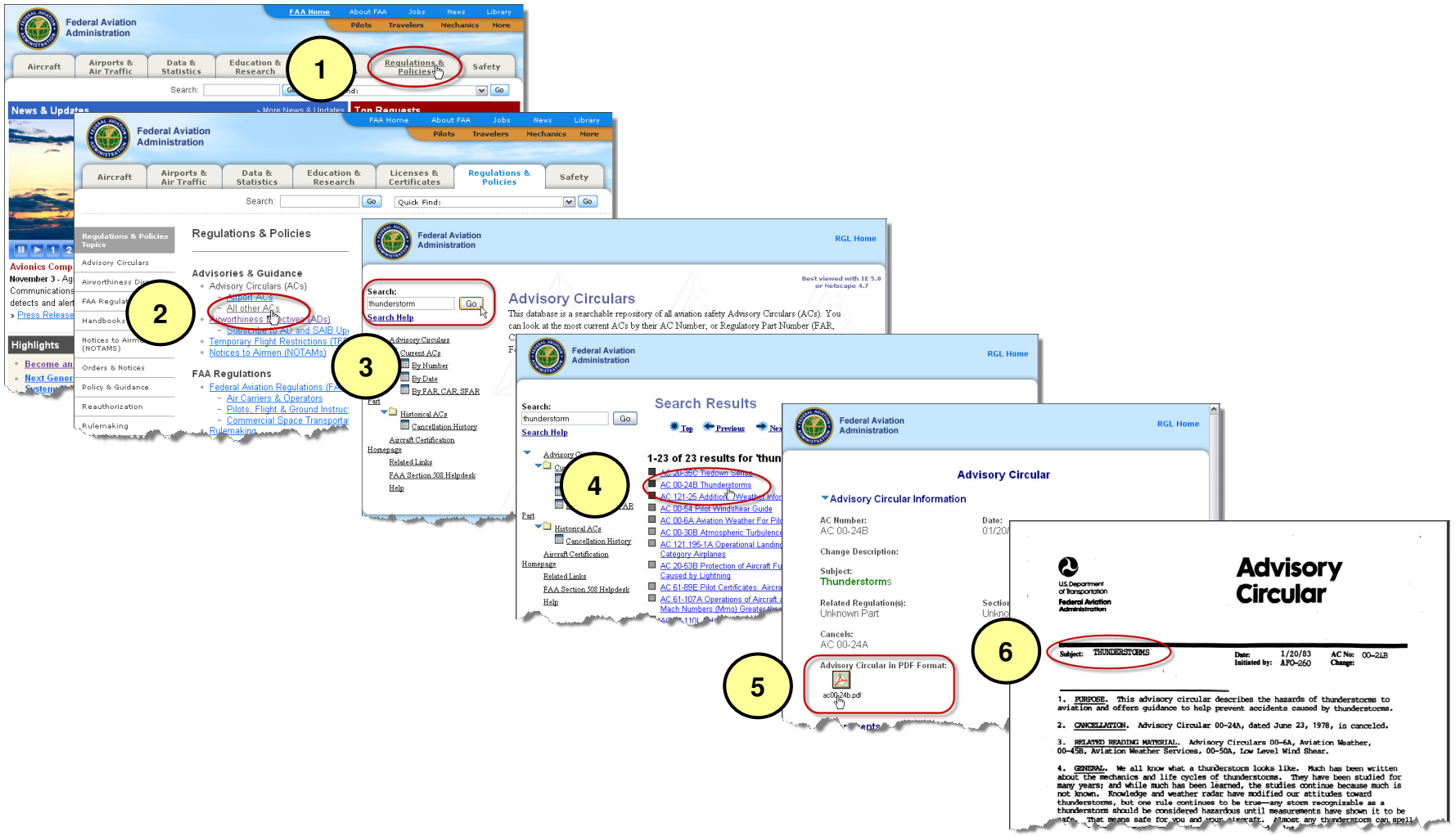
Case Study 3

Top Tasks

Improving Top Tasks on FAA.gov

- **20% of all tasks on FAA.gov** involve looking for regulations & policies
- **33% of the most common FAA.gov searches** have to do with regulations & policies

One pilot's path to find thunderstorm guidance

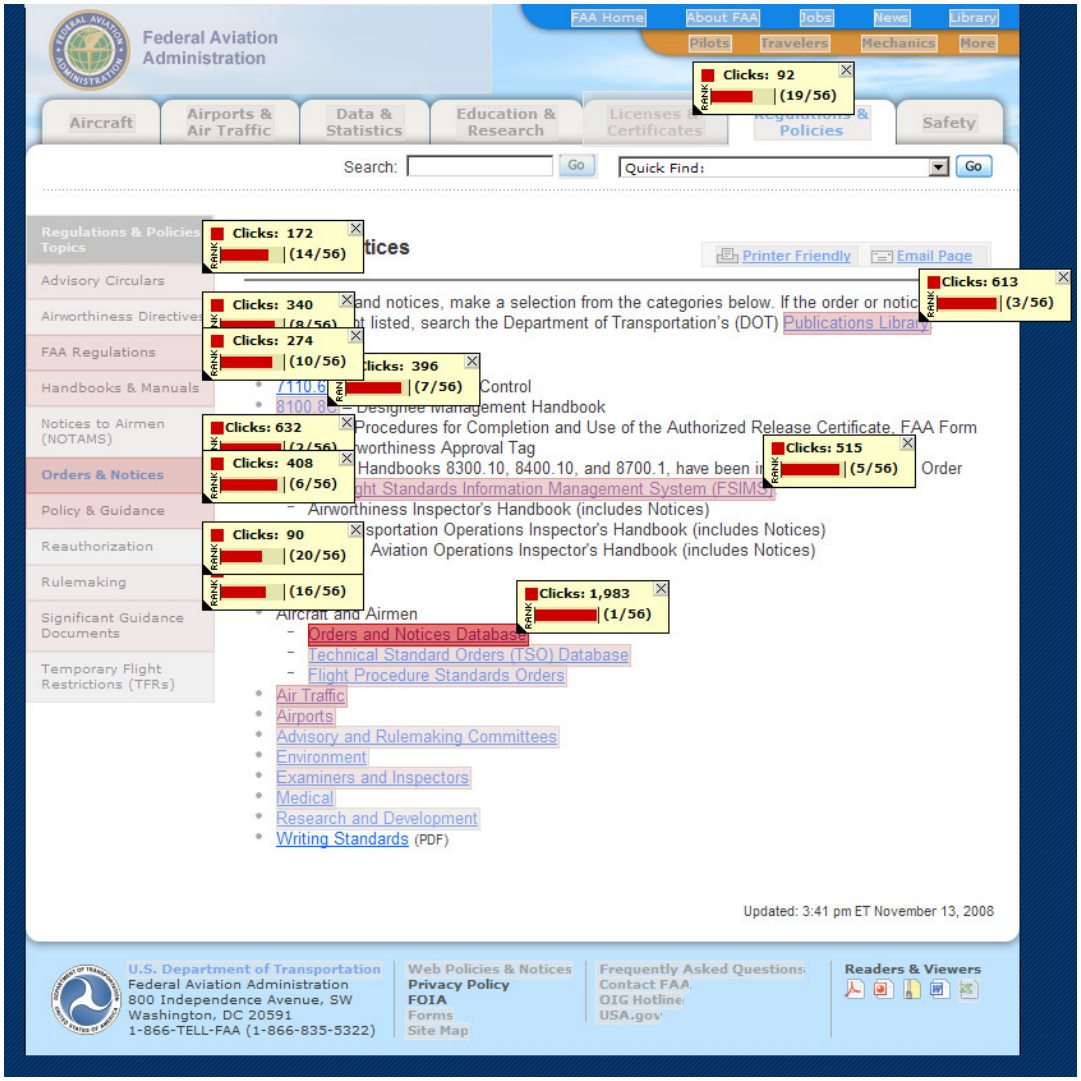


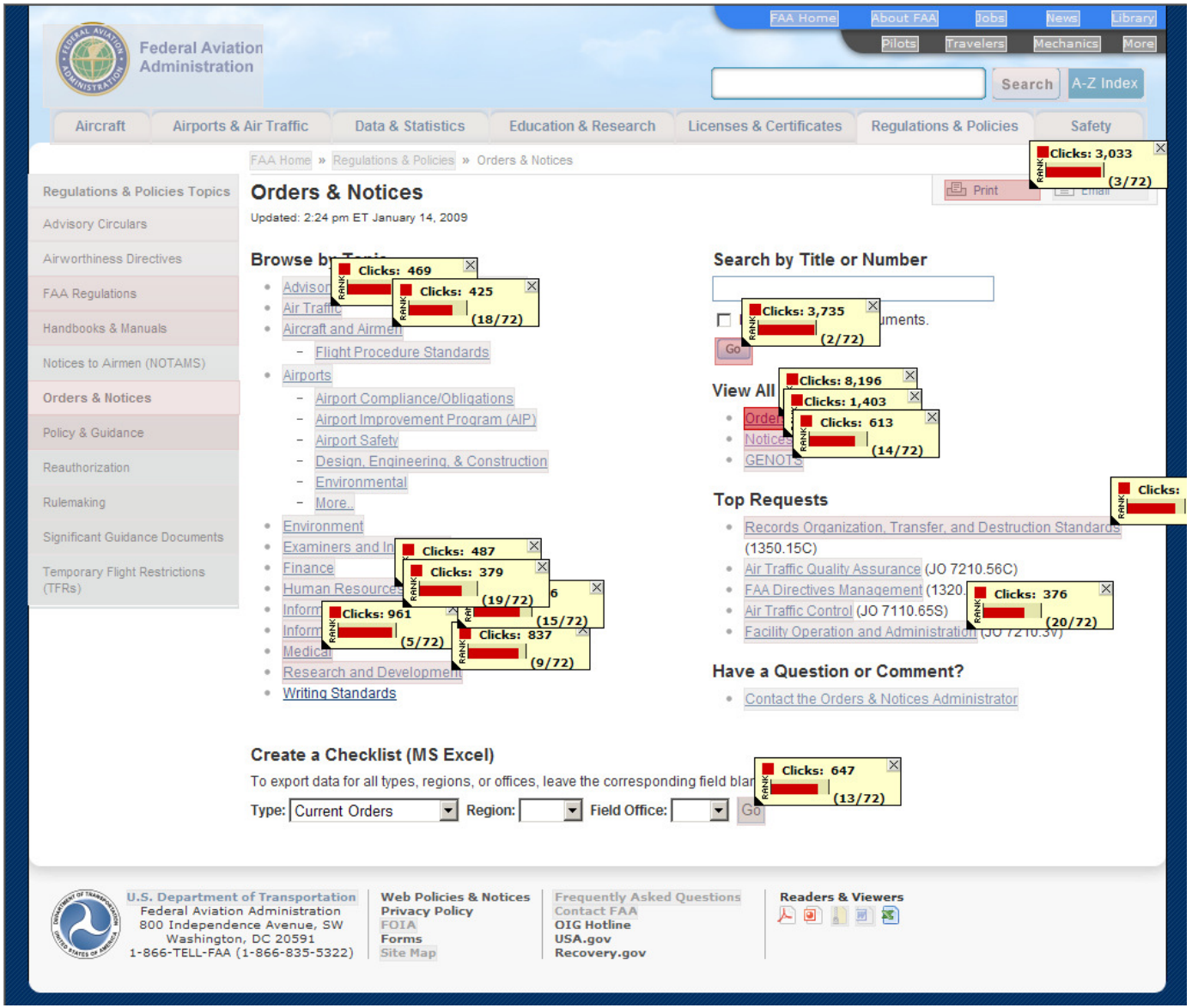
Our customers were sharing their frustrations…

“The locations of documents such as 8110.3 are very difficult to find. Please just provide a single site, with all FAA documents. This would be a very big help.”

Satisfaction score from this person: 38

Click-Map Data

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Airport Safety
Design, Engineering, & Construction
Environmental
More...
Environment
Examiners and In
Finance
Human Resource
Inform
Inform
Medical
Research and Development
Writing Standards
Clicks: 487
Clicks: 379 (19/72)
Clicks: 961 (5/72)
Clicks: 837 (9/72)
Search by Title or Number
Clicks: 3,735 (2/72)
Go
View All
Clicks: 8,196
Clicks: 1,403
Clicks: 613 (14/72)
Top Requests
Records Organization, Transfer, and Destruction Standards (1350.15C)
Air Traffic Quality Assurance (JO 7210.56C)
FAA Directives Management (1320.
Air Traffic Control (JO 7110.65S)
Facility Operation and Administration
Clicks: 376 (20/72)
Have a Question or Comment?
Contact the Orders & Notices Administrator
Create a Checklist (MS Excel)
To export data for all types, regions, or offices, leave the corresponding field blar
Clicks: 647 (13/72)
Type: Current Orders
Region:
Field Office:
Go
U.S. Department of Transportation
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591
1-866-TELL-FAA (1-866-835-5322)
Web Policies & Notices
Privacy Policy
FOIA
Forms
Site Map
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OIG Hotline
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Recovery.gov
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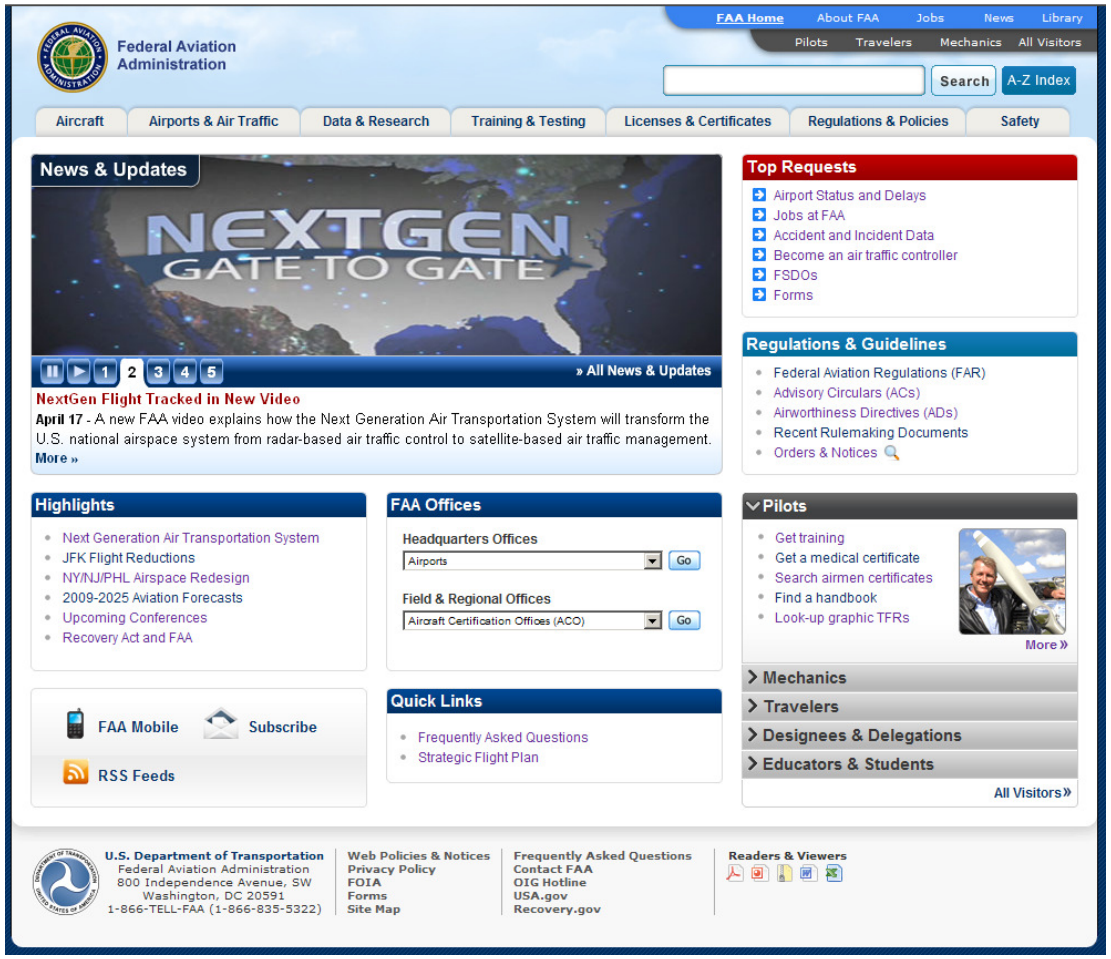
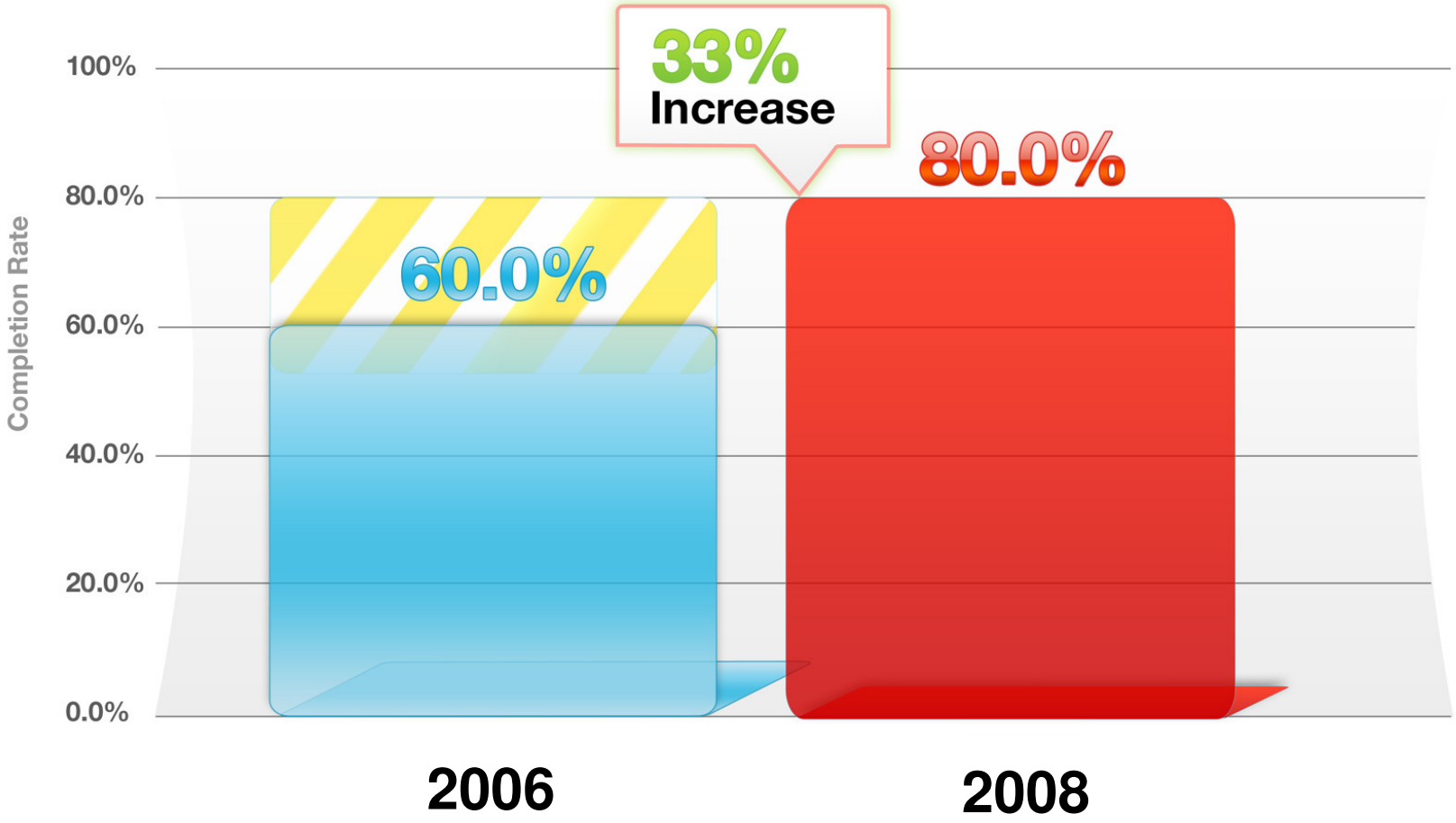


- **Two million visits a month**
- **Over 300 content contributors**

Did our improvements pay off?

FAA.gov Task Completion Rate



Customer Satisfaction Index (ACSI) Stats

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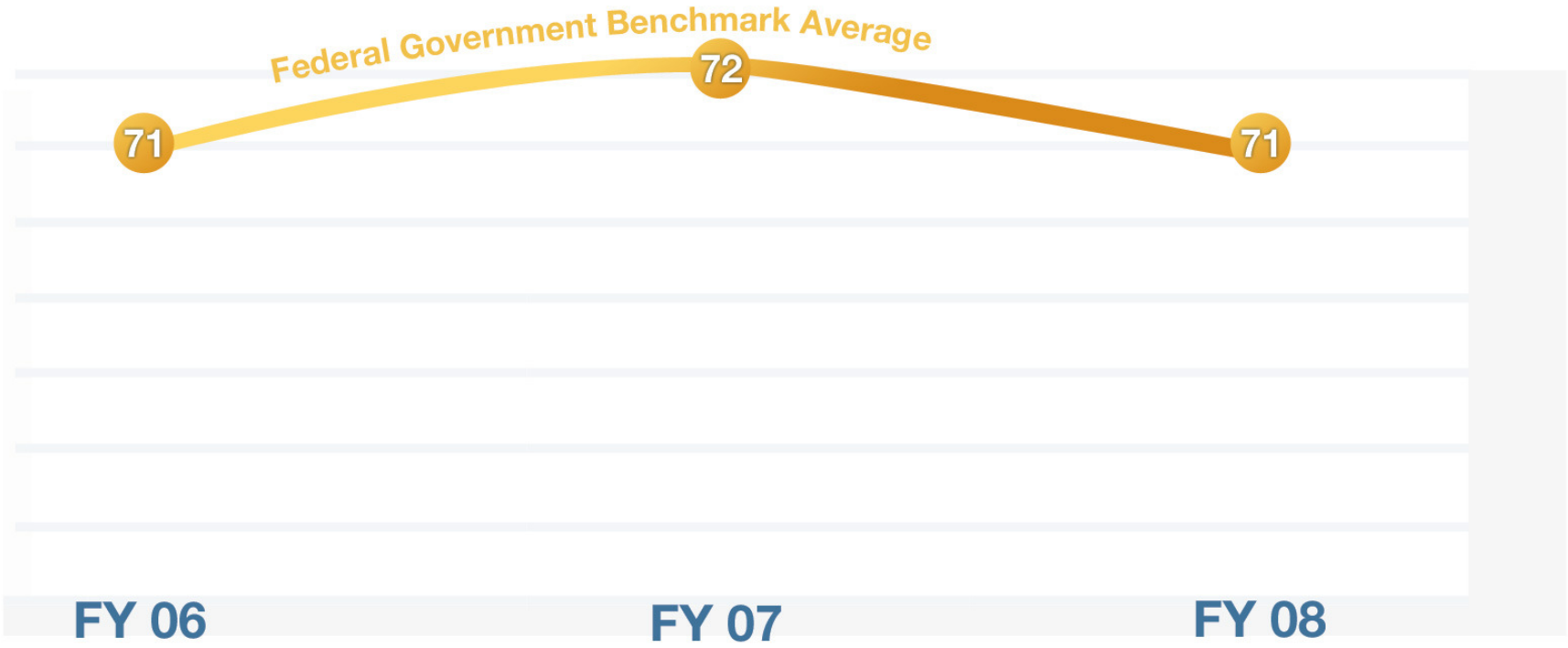

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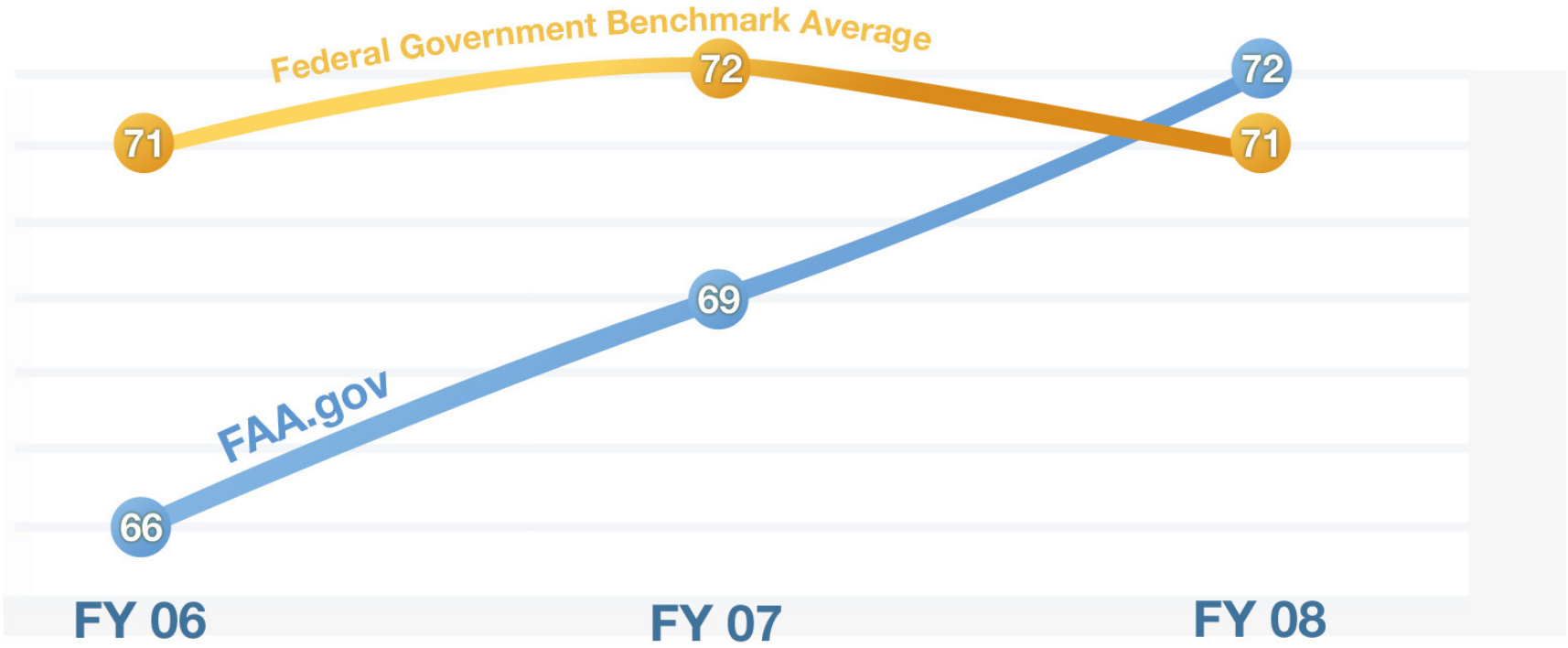

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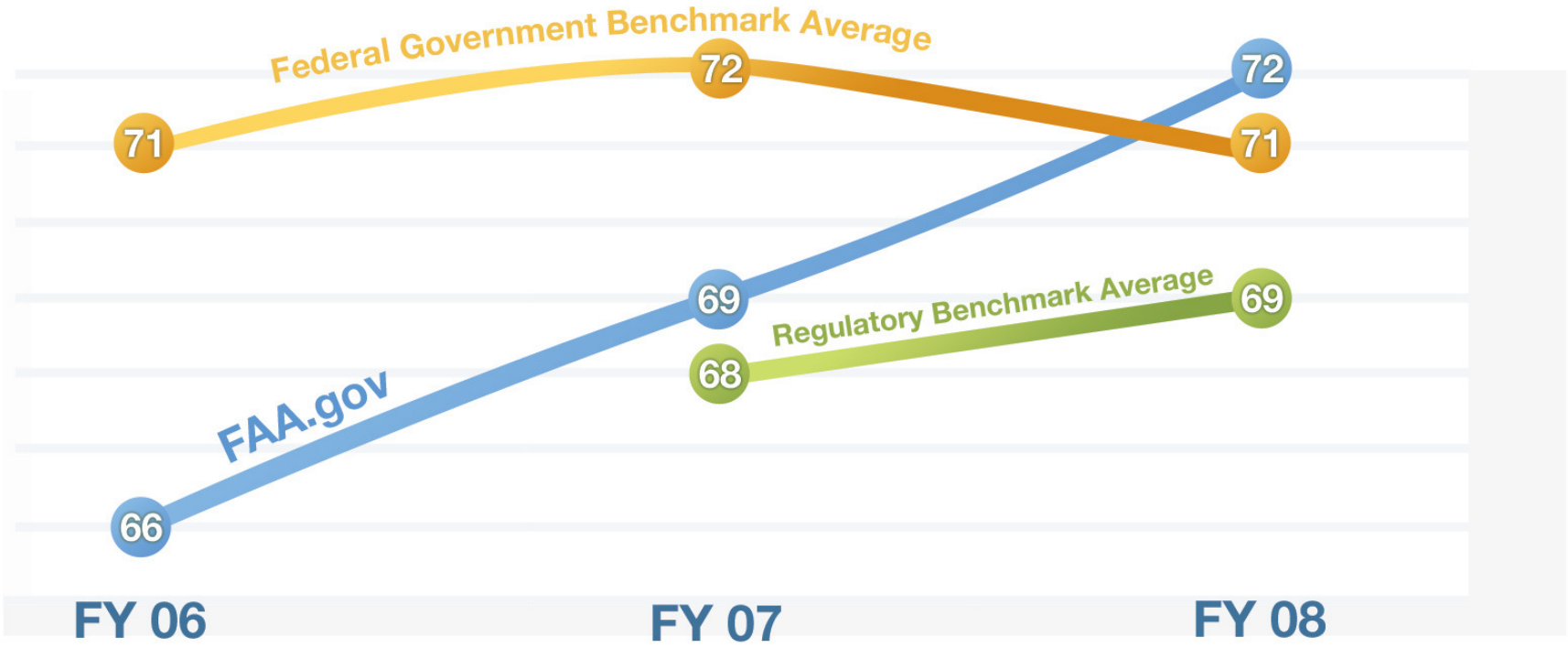


Recent Customer Comments (2009)

"This site keeps getting better and better!"

Satisfaction score: 97

"Amazing that this is a government site! Very nice."

Satisfaction score: 100

"The new layout is outstanding in its ease of use and it helps you find the information you seek efficiently and effectively."

Satisfaction score: 85

Improvements continue to pay off

ROI Pays off at FAA

The FAA Web Council:

- Agrees that usability must be considered in all new web applications and high-traffic sites
- Is helping to identify top-visited sites and online transactions
- Supports expanding in-house resources for usability testing

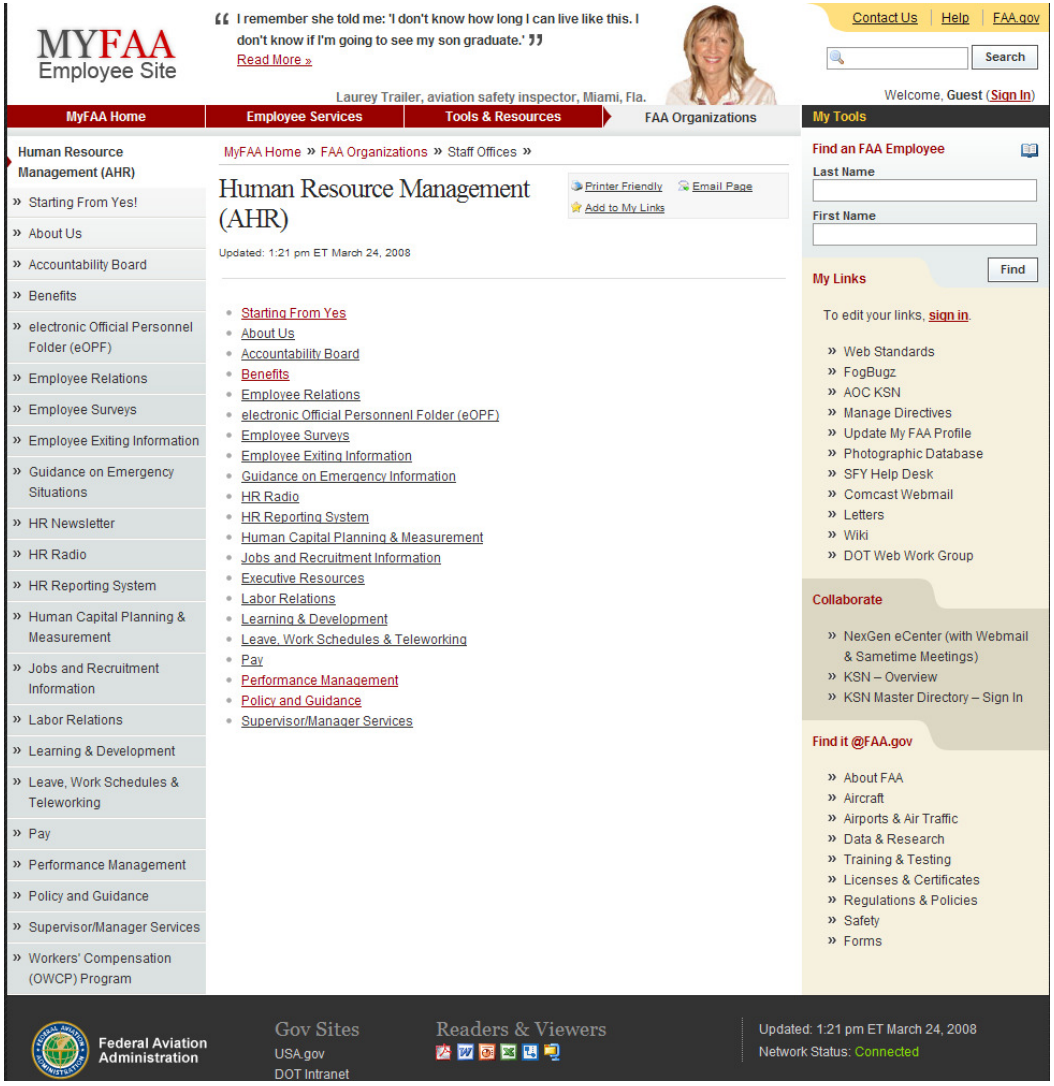
FAA CIOs are helping too:

- Supports a policy that requires user-centered design (UCD) in all application development
- Considering usability testing as a part of their software development life cycle process.

First we must educate people…

Three New Projects at FAA

HR Website User-Centered Design Project

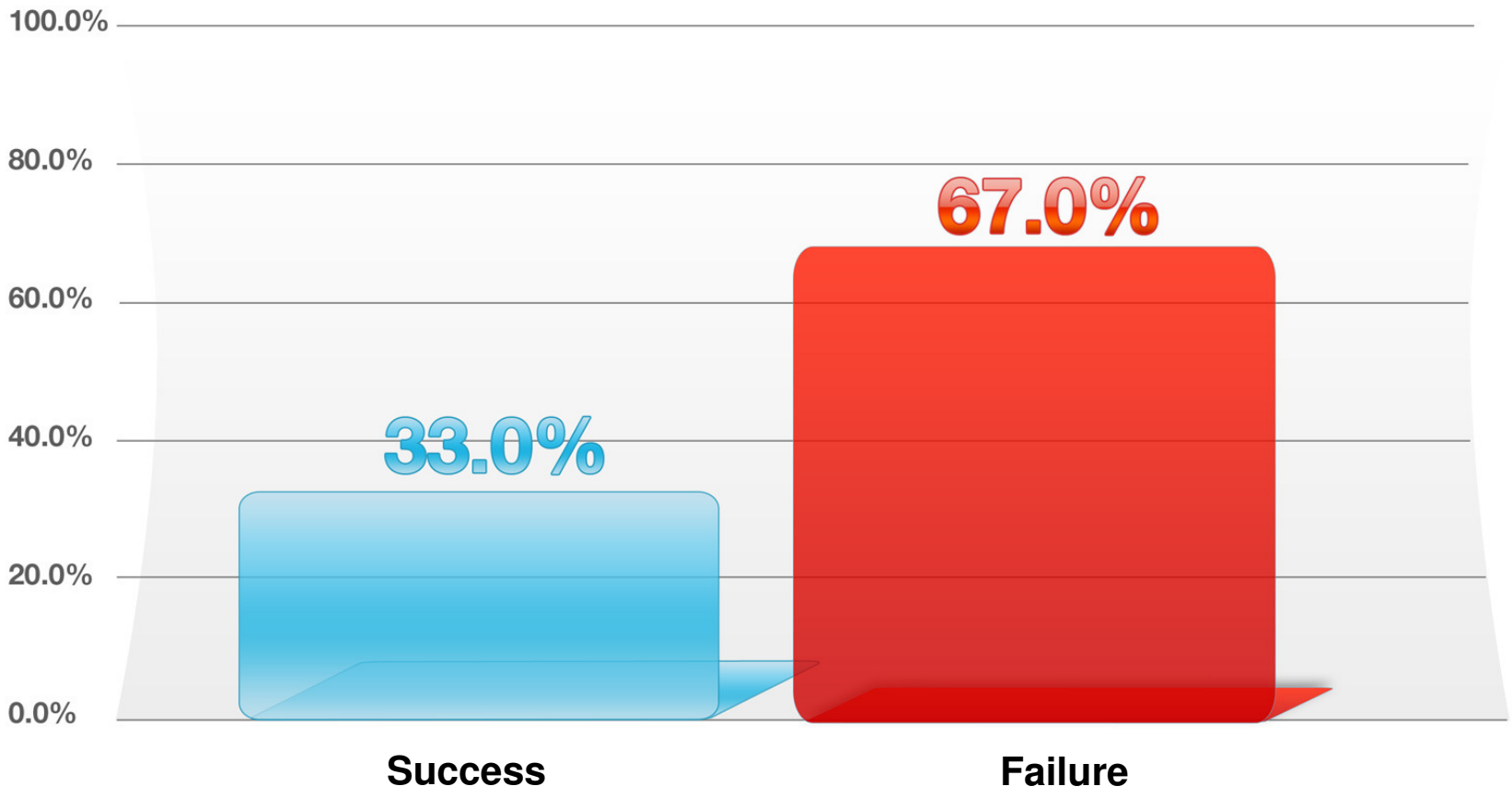


Employees.FAA.gov Website

- **2.8 million visits** each month
- Serves **48,000** FAA employees daily

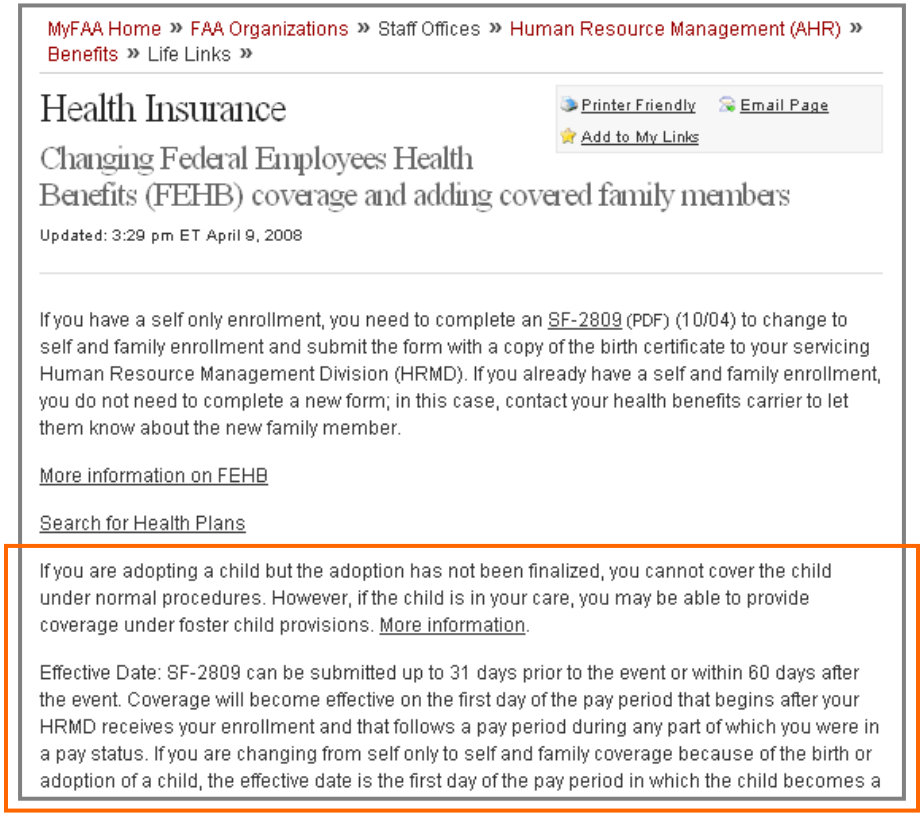
High-Level Results from FAA HR Intranet User Testing

- Inefficiency of site navigation caused majority of test participants to fail.*



Key Task: Add Spouse to Health Insurance

- Insurance information was difficult to locate.
- Content was rated as unclear by users.
- Nearly all said they would call HR, or else look further on the page if they had any questions.



MyFAA Home » FAA Organizations » Staff Offices » Human Resource Management (AHR) » Benefits » Life Links »

Health Insurance

Printer Friendly Email Page
Add to My Links

Changing Federal Employees Health Benefits (FEHB) coverage and adding covered family members

Updated: 3:29 pm ET April 9, 2008

If you have a self only enrollment, you need to complete an SF-2809 (PDF) (10/04) to change to self and family enrollment and submit the form with a copy of the birth certificate to your servicing Human Resource Management Division (HRMD). If you already have a self and family enrollment, you do not need to complete a new form; in this case, contact your health benefits carrier to let them know about the new family member.

More information on FEHB

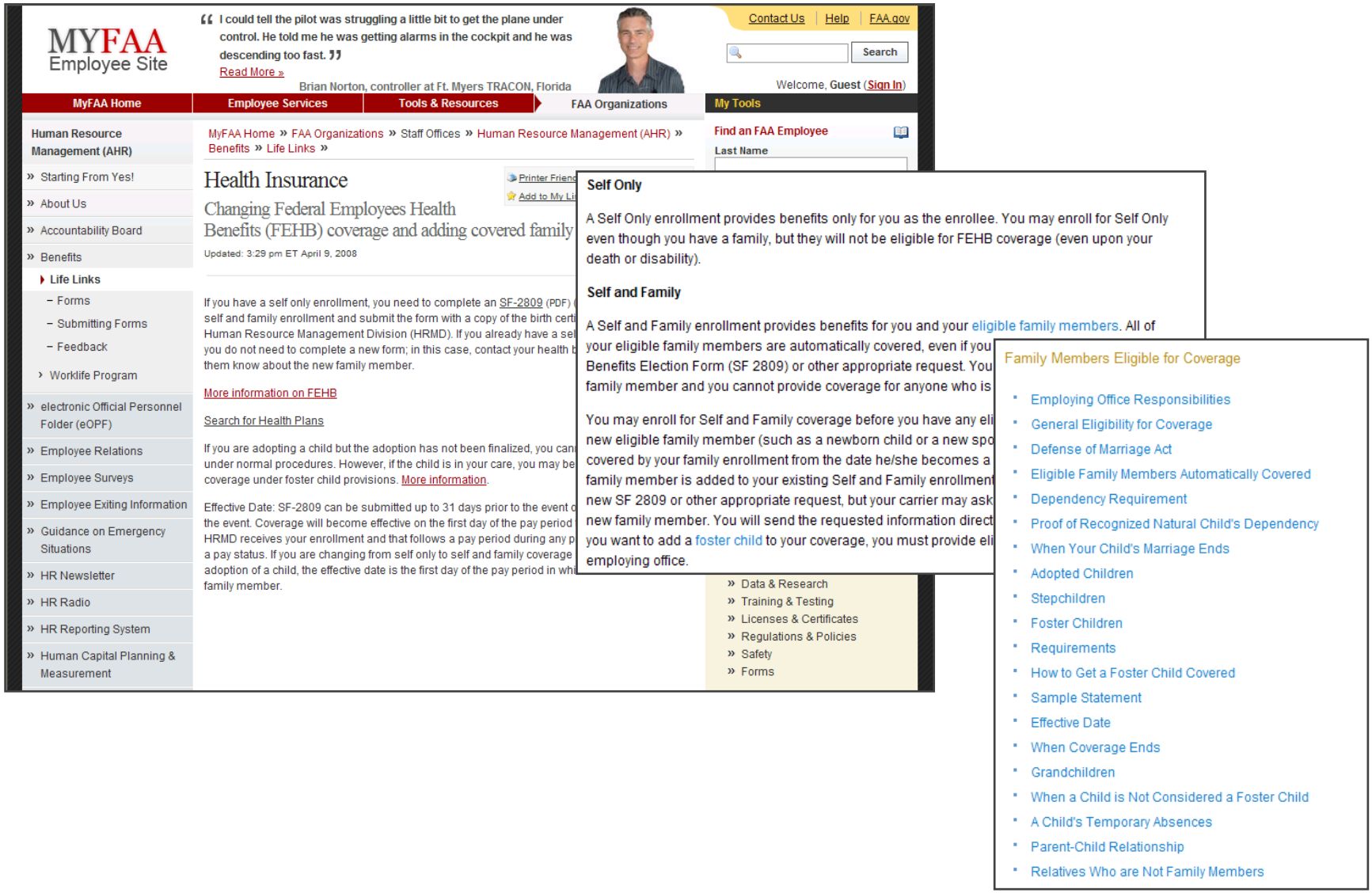
Search for Health Plans

If you are adopting a child but the adoption has not been finalized, you cannot cover the child under normal procedures. However, if the child is in your care, you may be able to provide coverage under foster child provisions. More information.

Effective Date: SF-2809 can be submitted up to 31 days prior to the event or within 60 days after the event. Coverage will become effective on the first day of the pay period that begins after your HRMD receives your enrollment and that follows a pay period during any part of which you were in a pay status. If you are changing from self only to self and family coverage because of the birth or adoption of a child, the effective date is the first day of the pay period in which the child becomes a

"Why are they asking about a birth certificate? It does not say marriage certificate!"
"If adopting a child, OK. But it's not very clear about how to add a spouse."
"Life Links is a catchy heading, but call it 'Significant Life Events' instead."

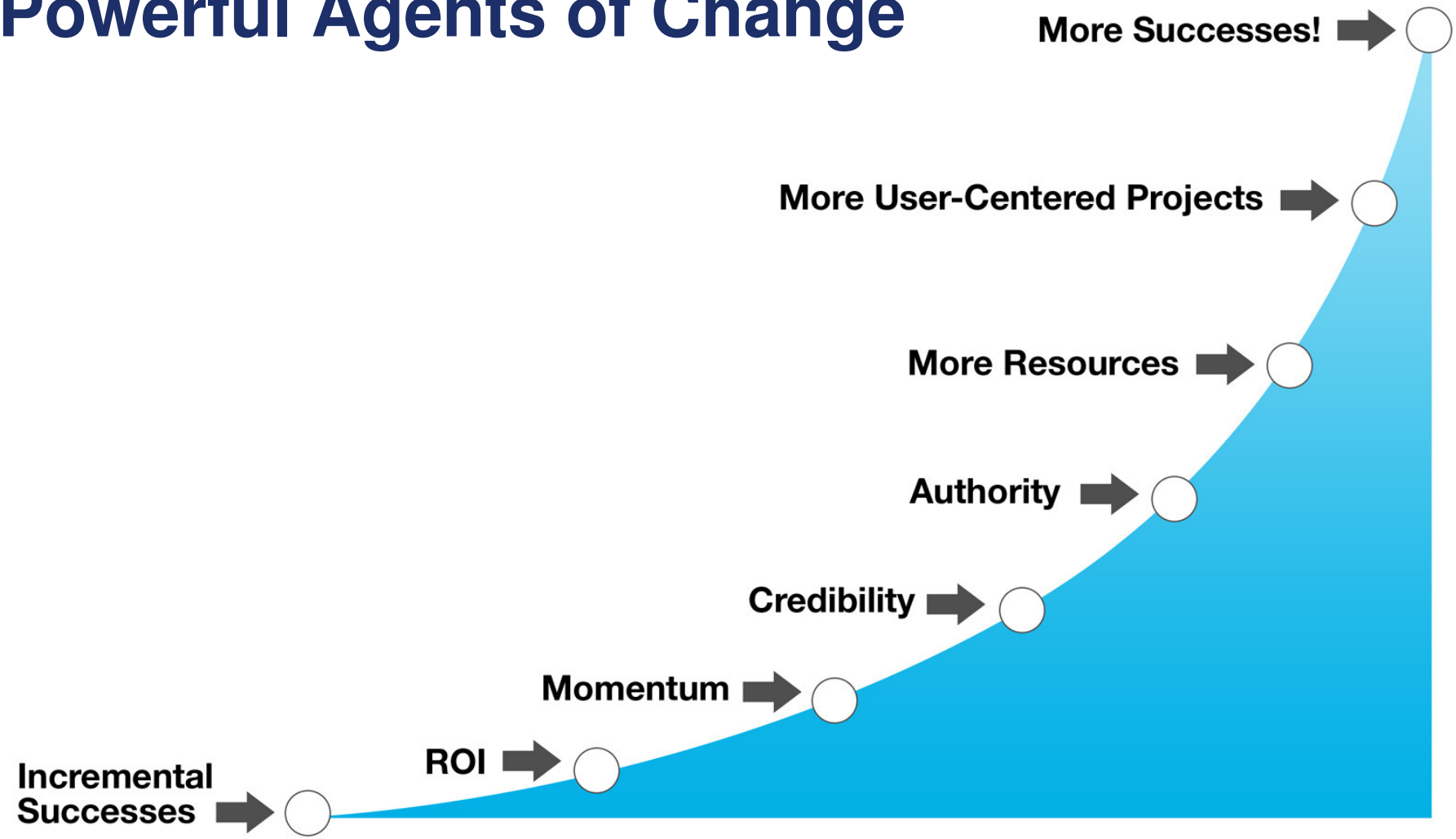
Original Information Sources for Changing Health Benefits



Proposed Redesign

Usability and ROI: Powerful Agents of Change

Usability and ROI: Powerful Agents of Change



Usability and ROI Resources

- **Usability Principles and Techniques**
  - http://www.usa.gov/webcontent/usability/techniques.shtml
- **Research-Based Web Design & Usability Guidelines**
  - http://usability.gov/pdfs/guidelines.html
- **How can I show that usability engineering saves money?**
  - http://usability.gov/basics/usasaves.html
- **HFI's ROI Calculators**
  - http://www.humanfactors.com/downloads/roi.asp

Questions and Discussion